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MONTANA STATE
AIRPORT SYSTEM PLAN

TECHNICAL SUPPLEMENT

June 21, 1974

Knoerle, Bender, Stone and Associates, Inc.
711 West 40th Street
Baltimore, Maryland 21211

and

Airways Engineering Corporation
1250 Connecticut Avenue
Washington, D.C. 20036

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Technical Supplement

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ABSTRACT OF SECTION I

The Montana State Airport System Plan, prepared by Knoerle, Bender, Stone and Associates, Inc. and Airways Engineering Corporation, is comprised of five volumes.

- Volume I is a general summary of the entire study, including its primary findings, intended for use by decision makers.
- Volume II is the main body of the report intended for use by specialists who will evaluate and implement the plan.
- Appendix I consists of three parts: (1) MSAP airports and airport classification; (2) table of unit costs; and (3) individual airport summaries including detailed aviation activity forecasts, summary and detailed cost estimates for required development by periods, along with an aerial photograph or sketch for each airport.
- Appendix II consists of: (1) history and forecasts of dependent and independent variables and the forecasting equation for each air carrier airport; (2) civil aircraft types by user category classified by seating capacity and operational group; (3) individual airport financial feasibility analysis grouped by county.

- Appendix III is a computerized data bank of Montana airports containing the physical and operational characteristics for the base year 1972, which is presented separately.

ABSTRACT OF SECTION II INVENTORY

Data collection was undertaken for each Montana State Planning District and included site inspections of 118 airports and collection of available master plans, layout plans, land use plans and technical reports. Ten year historical data on instrument and total operations, passengers, air cargo and registered aircraft were compiled, supplemented by FAA 5010-A Airport Facilities records.

The inventory revealed that Montana's average airport has 4.8 based aircraft and 2800 annual operations, indicating the importance of general aviation. Based aircraft for the state totaled approximately 1300.

ABSTRACT OF SECTION III ANALYSIS OF THE EXISTING SYSTEM

Air carriers serve Montana's needs adequately by aircraft comparable to those used to serve similar cities in other states. The average airport serves a twenty mile radius around each airport, a lower ratio than some states having greater population density.

Large areas of open land essentially preclude environmental problems, but planning is urgently required to protect some airports, such as Missoula, from nearby future incompatible land usage.

Demand/Capacity analysis indicates that if present day approach aids cannot meet IFR demand for conventional aircraft, STOL and MLS might be considered. The MSASP, however, is based on conventional aircraft expected during the study period.

Six major air carrier airports will have capacity deficiencies which require parallel general aviation runways. Most general aviation airports will require taxiways. In Montana, neither airports nor airspace are over-utilized.

ABSTRACT OF SECTION IV FORECAST

The requirement of a forecast of aviation activity demand was met by first developing two major independent forecasts; one of enplanements and the other of general aviation itinerant operations. Based essentially on these two forecasts, some 21 other aviation activity indicators were developed for each airport of the system.

Multiple regression analysis was used as the basic tool although other statistical methods were employed where appropriate. This method mathematically summarizes the historical interrelationships between a dependent variable, such as enplaned passengers, and independent varibles related to demand, such as population, income or employment.

Enplanement growth for the state was forecast to be 8.1% per year for a total of 2.6 million per year by 1992. Billings and Great Falls are projected to maintain their two-thirds share of the total state activity, but the largest rates of passenger traffic growth are expected in the major recreational areas served by the Bozemen, West Yellowstone and Kalispell airports. Statewide general aviation activity growth is estimated at 3.6% per year through the study period with Billings and Great Falls accommodating about 20% of the total state general aviation traffic.

ABSTRACT FOR SECTION V FUTURE AIRPORT SYSTEM REQUIREMENTS

In Montana, the present distribution of demand is served optimally by the existing airport system. Thus no major alternative, such as a regional airport, is considered.

Butte requires a new airport site costing 7 million dollars by 1977. Bozeman requires a new terminal complex by 1977. Missoula needs a general aviation runway by 1982 and a method to lower IFR minima. Billings (by 1982) and Helena (by 1977) require general aviation runways and areas for terminal expansion. Kalispell requires a general aviation runway by 1987.

Although it is not critical in terms of volume of activities, it can be said that a long term need exists for enroute VOR facilities for lower minimum cruising altitudes on seven route segments. An airway is desirable between Cut Bank and Kalispell to shorten the distance between them and to extend northern airway V430 westward from Cut Bank.

The recommended policy for air carrier airports is to provide ILS or MLS with MALSR where justified by FAA criteria. For general aviation airports VOR and VASI may also be needed. FSS and ATC communications discrepancies due to projected changes in the FSS should be documented and cited to FAA to assure safety and rescue functions where traffic is sparse.

ABSTRACT FOR SECTION VI FINANCING

The financing recommendations made to assure a viable State System financial plan were developed from an analysis of projected airport development, operation and maintenance costs and the existing and possible new sources of revenue available to the State and to the municipalities.

The project costs for the airports of the State System Plan were estimated by costing the new facilities required. These were obtained by translating the projected aviation demand indicators into airport facility requirements.

Total project costs, less the federal aid prospectively available, were then divided into the two categories of airport sponsors: state and municipalities. By determining the share of costs which might be borne by the state and municipalities with the existing revenue sources, it was concluded that they were not adequate to provide the total local funds to be needed.

Methods of increasing the state and municipal revenues available for airport development were then investigated. It was determined that a transfer of the personal property tax on aircraft to the State and an increase in the aviation fuel tax would provide sufficient funds to enable the State to participate up to 50% of the total local funds required, statewide, for airport development after all the development and operation needs of state-owned airports are fully met. It was then concluded that such participation at the state level would enable the local authorities

to meet the remaining financial need with the increased airport mill levies on real property with a few exceptions.

Based on this result, two alternative financial plans were investigated in detail. This analysis resulted in a comprehensive plan which recommends that several legislative actions be taken.

The total costs of the airport development recommended over the twenty year period amounts to $79.3 million. The prospective Federal Aid would supply $45.3 million of this, leaving $34.0 million to be financed by a combination of state and local governments.

ABSTRACT FOR SECTION VII IMPLEMENTATION

The implementation plan is discussed under the constraints of financial, legislative, environmental and physical considerations.

Two alternative implementation plans are presented which assume no financial constraints on federal aid. A third alternative implementation plan is prepared with the constraint that future federal funds available for airport improvements will not exceed the level currently allocated to the State of Montana.

The First and Second Alternatives are based on the facilities required to meet the future demand.

The Third Alternative plan is derived by several rearrangements of facility development items by implementation phases constrained by the available federal funds.

I INTRODUCTION

The State of Montana has long recognized the need of a good, well balanced airport network to improve its overall communications and accessibility. With an area of 146,997 square miles (560 miles long and 327 miles wide) it is evident that local airports could serve as access routes from communities to the key cities within the State and from these key cities to the rest of the Nation.

The Montana State Airport System Plan as developed herein will provide a base-line master plan for the development of airports in Montana during the next twenty years.

A. Goals and Objectives

The more important goals and objectives underlying the MSASP (and made a part of this study criteria) are listed below:

1. To provide for the orderly and timely development of a system of airports adequate to meet the aeronautical and air transportation demand needs for Montana for the period 1971-1992.

2. To provide a framework for airport development programs consistent with short, intermediate, and long range needs.

3. To provide a basis for coordination of airport plans with the planning by metropolitan and regional agencies in the areas of transportation, land use, economic development, and resource utilization.

4. To inform national and local political, industrial, and individual interest of airport facility requirements.

5. To provide a document for use at the local level in:

   a. preliminary planning
   b. master planning
   c. detail planning
   d. estimating cost of development

6. To make possible long-range coordination of airport development in four phases: 1977, 1982, 1987 and 1992.

7. To identify general locations of all airports, by type and size, that will be required to make air transportation reasonably accessible to all communities in Montana.

8. To provide for orderly allocation of land for airport purposes.

9. To minimize airport-related environmental problems.

B. Coordination With State Agencies

The Study Team of Knoerle, Bender, Stone and Associates and Airways Engineering Corporation coordinated its work with the on-going plans of several agencies besides the Montana State Aeronautics Division. The primary state planning groups involved in this effort were:

1. The Department of Intergovernmental Relations
   a. The Division of Planning and Economic Development

2. Montana State Highway Commission

To a lesser extent, the Study Team also relied upon the work of:

3. The Montana Fish and Game Commission

4. The Montana State Board of Equalization

The Federal agencies which were contacted during this study included:

1. Federal Aviation Administration

    a. District Office
    b. Control Tower Personnel
    c. Air Route Traffic Control
    d. Regional Office

2. U.S. Forest Service

Several private groups were also included in Study Team research:

1. Montana Airport Managers Association (MAMA)

2. Montana Property Taxpayers Association

3. University of Montana

    a. Bureau of Business and Economic Research

Many local, county, city and airport officials were interviewed during the early stages of analysis. With the exception of five small airports which had no based aircraft, members of the Study Team physically inspected every airport site and talked with the managers, fixed-base operators, pilots, and maintenance personnel on duty.

II. INVENTORY

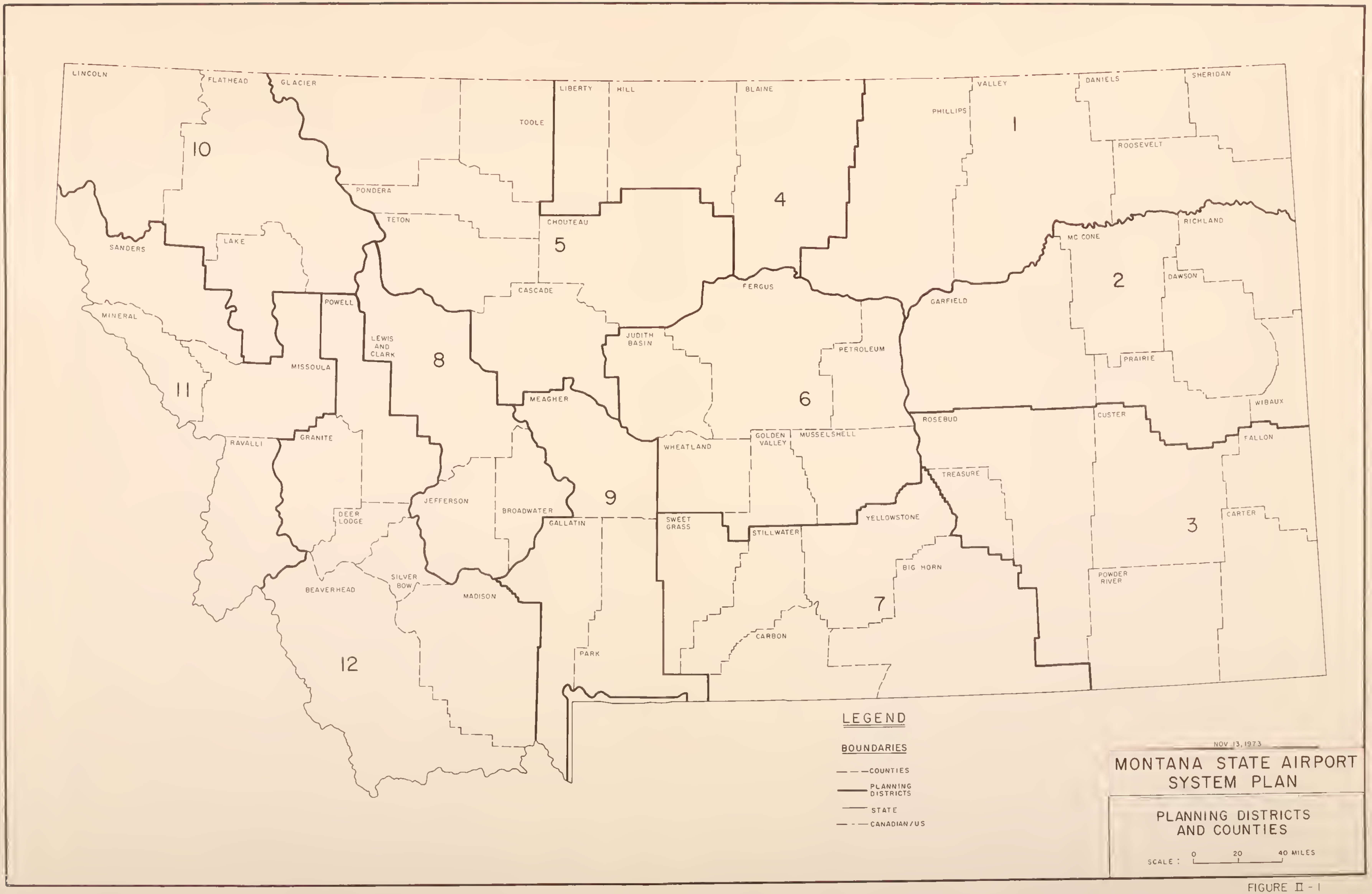
A. Aviation Activity Data Collection

The data collection effort was undertaken as follows: The Montana State Planning Districts shown in Figure II-1 were utilized for administering the field inventory. The inventory team visited 118 airports and in addition to updating FAA Form 5010 information collected further data on all airports and obtained all available master plans, layout plans, land-use plans and other technical reports.

Published sources were researched and data were compiled onto a computer punch card file which proved an exceptionally useful component of the inventory data. These data included ten year historical data of all of the following: (1) Air Carrier instrument and total operations, (2) Air carrier passengers, (3) Cargo freight and mail, (4) General aviation operations (itinerant, local and instrument operations), (5) Military operations (itinerant, local and instrument operations), and (6) registered aircraft by county.

Fifteen of the airports serve scheduled air carriers and the remainder serve only general aviation. During the study, the airport at Dodson was discovered to be inactive and was eliminated from the study group.

Copies of Master Plan reports were collected from the following Air Carrier Airports: Billings, Bozeman, Butte, Great Falls,


LINCOLN
FLATHEAD
GLACIER
LIBERTY
HILL
BLAINE
VALLEY
DANIELS
SHERIDAN
TOOLE
PHILLIPS
1
10
ROOSEVELT
PONDERA
4
TETON
CHOUTEAU
RICHLAND
SANDERS
LAKE
5
MC CONE
2
DAWSON
FERGUS
GARFIELD
CASCADE
POWELL
MINERAL
JUDITH BASIN
PETROLEUM
LEWIS AND CLARK
8
MISSOULA
PRAIRIE
11
6
MEAGHER
WIBAUX
CUSTER
ROSEBUD
GRANITE
GOLDEN VALLEY
MUSSELSHELL
FALLON
RAVALLI
WHEATLAND
TREASURE
JEFFERSON
9
BROADWATER
DEER LODGE
YELLOWSTONE
CARTER
SWEET GRASS
3
GALLATIN
STILLWATER
BIG HORN
SILVER BOW
POWDER RIVER
BEAVERHEAD
MADISON
7
CARBON
PARK
12
LEGEND
BOUNDARIES
COUNTIES
PLANNING DISTRICTS
STATE
CANADIAN/US
SCALE: 0 20 40 MILES

NOV 13, 1973

MONTANA STATE AIRPORT SYSTEM PLAN

PLANNING DISTRICTS AND COUNTIES

FIGURE II - 1

Helena and Missoula. Such plans were consulted in detail and incorporated into the system plan wherever practicable. No Master Plan Reports for General Aviation Airports were located.

Airport Layout Plans were collected for 69 airports. Some type of layout plan or master plan was collected for each air carrier airport, and layout plans were collected for 64 of 103 General Aviation Airports.

The inventory team obtained copies of the most recent Federal Aviation Administration Form 5010-A (Master Records) for all but two General Aviation Airports, which are turf strips with no other developments. The planning documents of other organizations were collected including specifically those relating to the airport system of pertinent socio-economic data.

B. Montana Airports Today

The following presents a general summary of the existing Montana Airport System. Detailed data are shown in Appendix I, No. 3.

1. Air Carrier Airports

Figures II-2 and II-3 provide an indication of the levels of service provided by the Montana Air Carrier Airports.

Source: 1971 - C.A.B. - F.A.A. Airport Activity Statistics Of Certificated Route Air Carriers

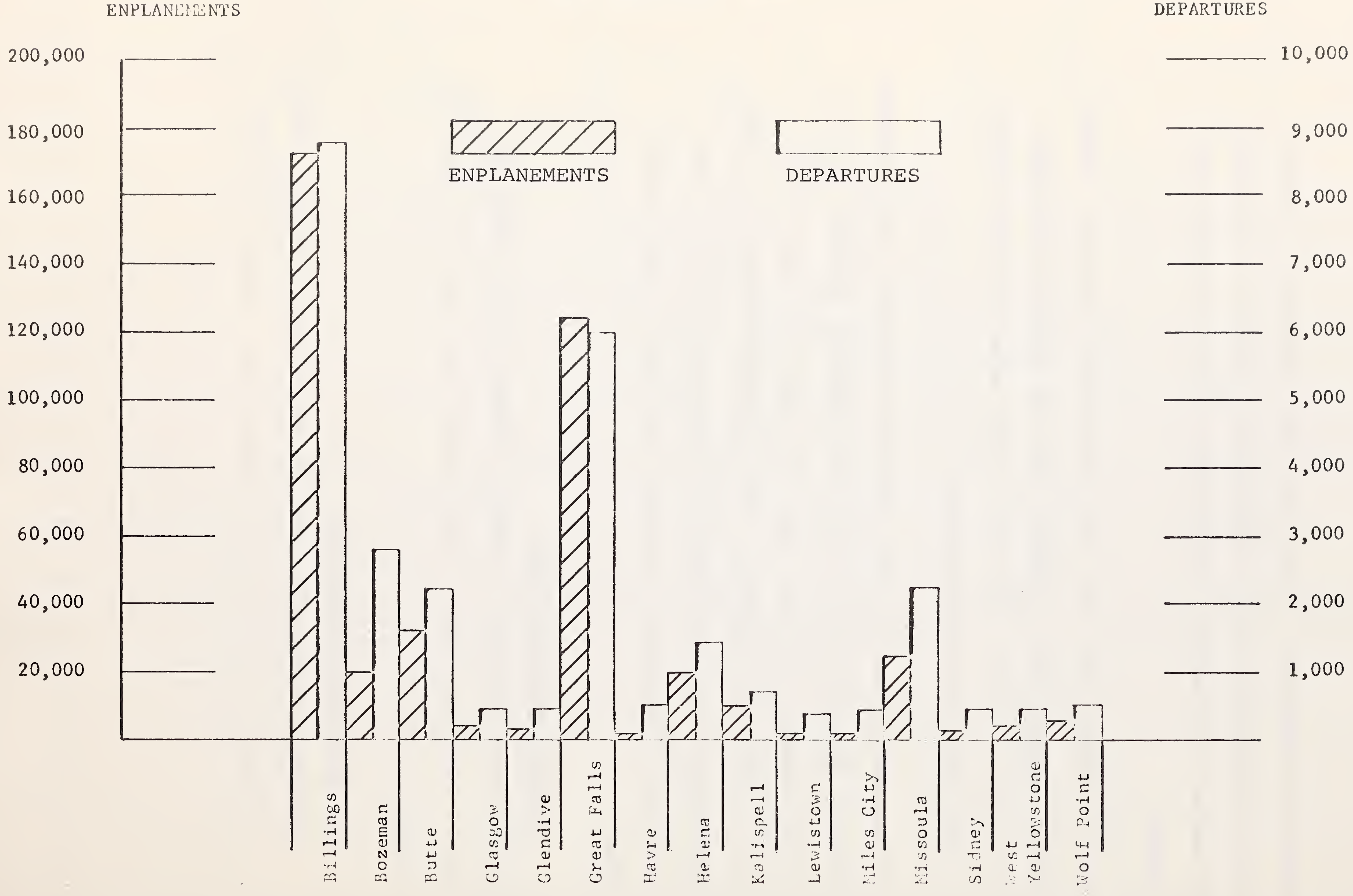


Fig II-2 Number of Enplanements and Departures for 1971.

Source: 1970 - C.A.B. - F.A.A. Airport Activity Statistics
Of Certificated Route Air Carriers

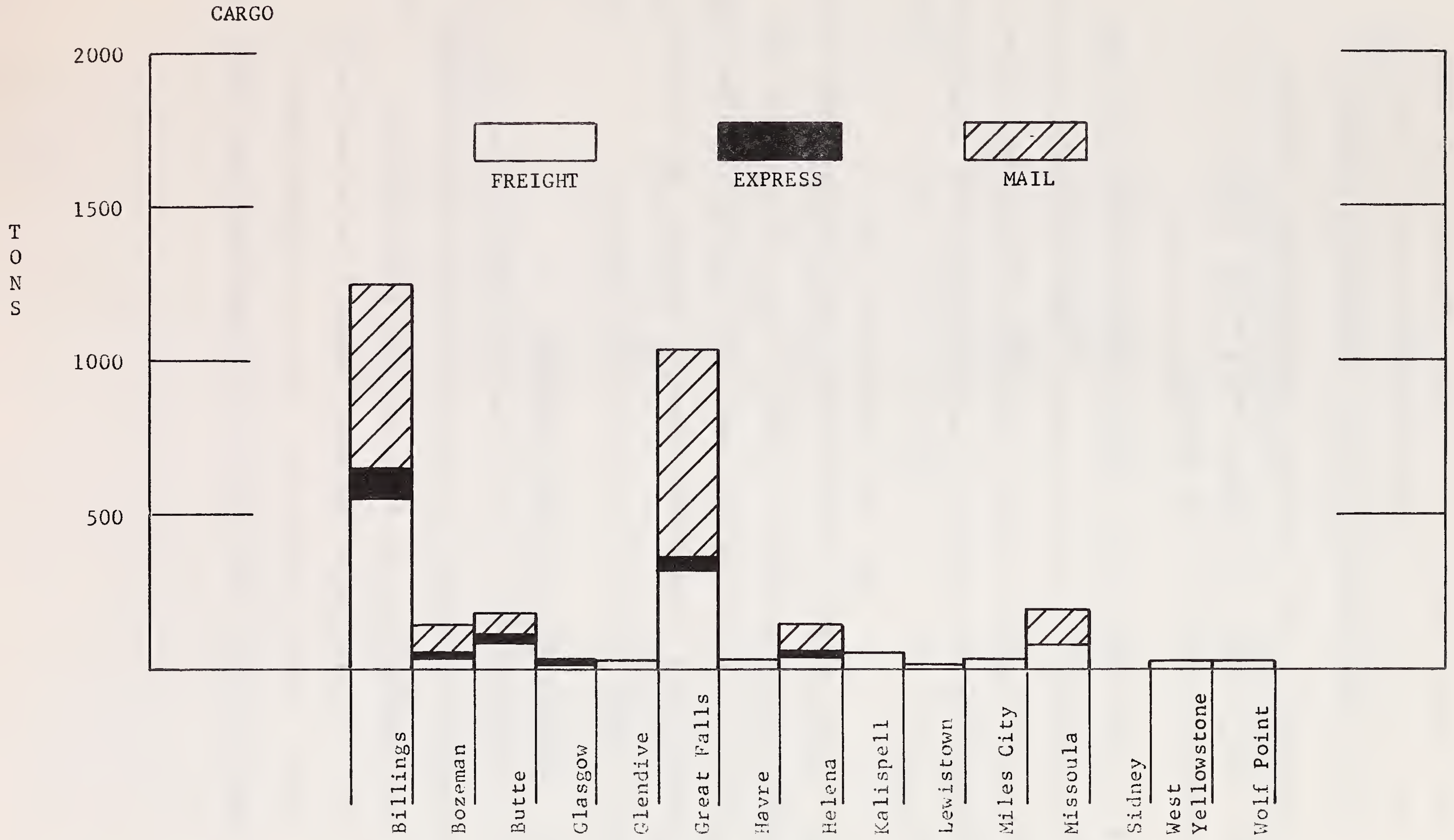


Fig II-3 Cargo Tonnages for 1970

From the standpoint of activity, passengers and all other indicators, the most active airports in Montana are Billings and Great Falls. Bozeman is third in enplanements, but fourth in based general aviation aircraft, while Missoula alternates as fourth in the former and third in the latter.

Billings, Great Falls, Butte, Bozeman, Helena and West Yellowstone are served by two or more scheduled air carriers. Glasgow, Glendive, Havre, Kalispell, Lewistown, Miles City, Sidney and Wolf Point are served only by one scheduled air carrier.

A summary of Air Carrier Aircraft and corresponding maximum haul lengths is shown in Table II-1. It is shown that aircraft serving Montana vary from the B707 at Great Falls and Billings to the Twin Otter at Sidney. Air carrier haul length varies from 50 to 1050 miles.

a. Operations and Based Aircraft

Two factors which provide some indicators of an air carrier airport's importance to General Aviation users are its total operations and its number of based aircraft. Table II-2 reflects the most recent figures available (1971). On the average air carrier airports have 59 based aircraft and record 42,336 operations per year.

TABLE II - 1

AIR CARRIER AIRCRAFT AND MAXIMUM HAUL LENGTH (1972)

Origin	Servicing Aircraft	Trip Length	Destinations
BILLINGS:	B707, B727, B737, CV580 and Twin Otter 100	1050 miles	Chicago
BOZEMAN:	B727 and CV580, B737	120 miles	Billings
BUTTE:	B727 and B737	345 miles	Salt Lake City
GLASGOW:	Twin Otter 100	140 miles	Havre
GLENDIVE:	Twin Otter 100	120 miles	Miles City
GREAT FALLS:	B707, B727, DC-9 Twin Otter, B737 Twin Otter 100	472 miles	Salt Lake City
HAVRE:	Twin Otter 100	140 miles	Glasgow
HELENA:	B737, B727	180 miles	Billings
KALISPELL:	DC-9, F227	150 miles	Spokane
LEWISTOWN:	Twin Otter 100	100 miles	Great Falls
MILES CITY:	Twin Otter 100	150 miles	Billings
MISSOULA:	B727 and CV580	425 miles	Salt Lake City
SIDNEY:	Twin Otter 100	50 miles	Glendive
WEST YELLOWSTONE:	B737 and CV580	100 miles	Bozeman
WOLF POINT:	Twin Otter 100	100 miles	Williston

TABLE II - 2

BASED AIRCRAFT AND OPERATIONS

AIRLINE AIRPORT	BASED AIRCRAFT	ANNUAL OPERATIONS
BILLINGS	208	100,000
BOZEMAN	39	60,000
BUTTE	34	24,000
GLASGOW	34	28,000
GLENDIVE	21	13,000
GREAT FALLS	155	90,000
HAVRE	22	13,000
HELENA	52	47,000
KALISPELL	38	82,000
LEWISTOWN	49	17,000
MISSOULA	154	100,000
SIDNEY	11	10,000
WEST YELLOWSTONE	3	2,200
WOLF POINT	7	6,500

The foregoing strongly indicates the importance of the general aviation role played at air carrier airports in Montana. With the exception of West Yellowstone, most air carrier airports have relatively large general aviation fleets and high annual general aviation operations.

b. Navigational Aids and Minima

A map of NAVAIDS is shown as Figure II-4. The landing minima for the air carrier airports are shown in Table II-3.

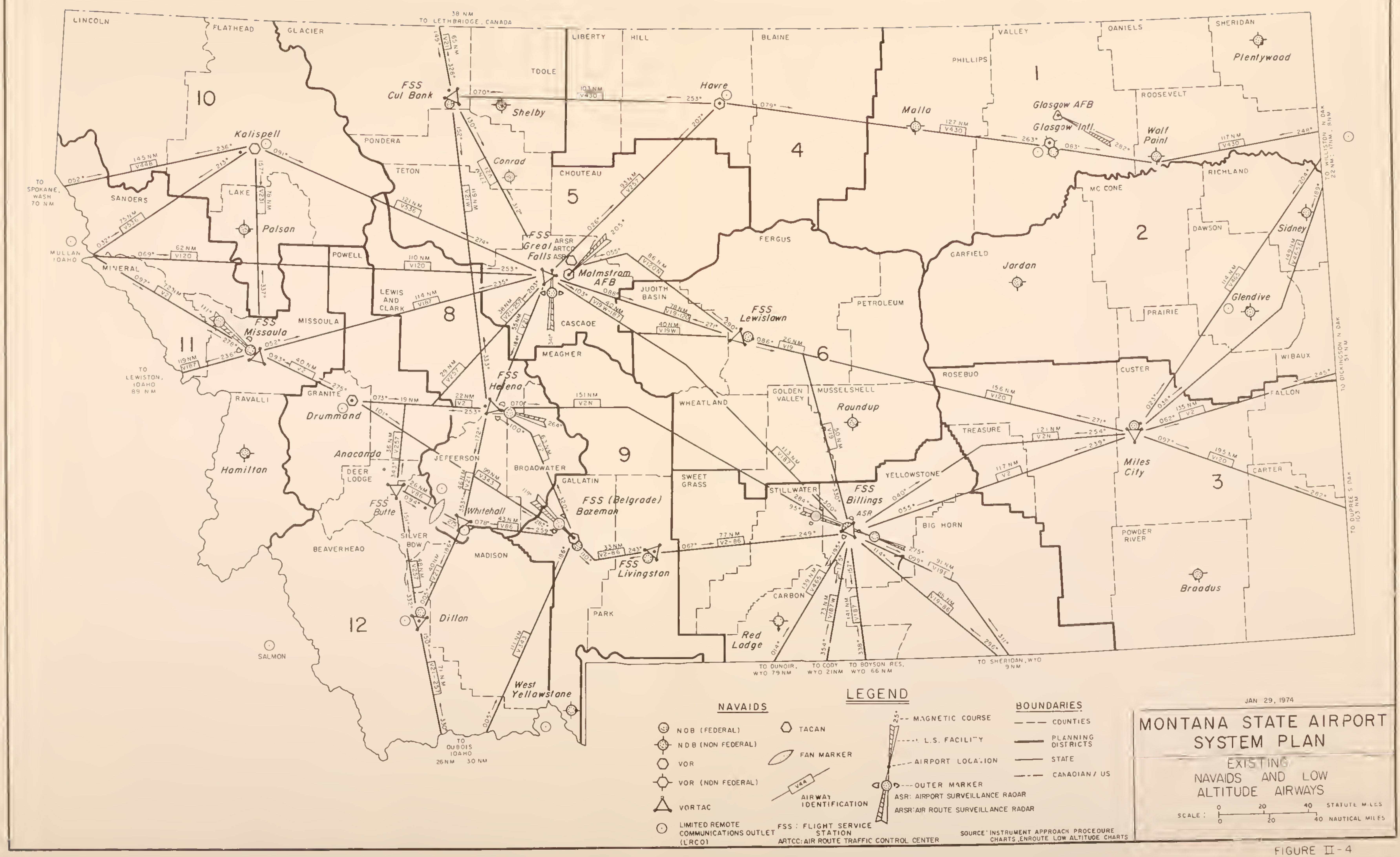
2. General Aviation Airports

It is to be expected that for adequate service the fourth largest state in geographical area would require numerous airports. There are 148 public use airports reported in FAA Form 5010 Airport Facility Records, 73 for which improvements are recommended in the 1972 National Airport System Plan and 5 for which no improvements are recommended.

The study began with the acceptance of 118 airports listed in the Montana State Airport Directory as the initial group to be studied. The data compiled covers their facilities and services, ownership, runways, operations, registered and based aircraft, and physical data of the airports and their environs.

a. Facilities

Of the airports under consideration, 55 percent have some sort of improved surface; 45 percent are paved, 7 percent are stabilized turf, 3 percent are gravel. The 45 percent unimproved are generally described as "turf". Forty-six percent of the general aviation airports are without runway or boundary lights.


38 NM TO LETHBRIDGE, CANADA
LINCOLN
FLATHEAD
GLACIER
LIBERTY
HILL
BLAINE
VALLEY
DANIELS
SHERIDAN
PHILLIPS
TOOLE
PONDERA
TETON
CHOUTEAU
SANDERS
LAKE
POWELL
MINERAL
MISSOULA
LEWIS AND CLARK
CASCADE
JUDITH BASIN
FERGUS
PETROLEUM
GARFIELD
MC CONE
RICHLAND
DAWSON
PRAIRIE
WIBAUX
ROOSEVELT
MEAGHER
WHEATLAND
GOLDEN VALLEY
MUSSELSHELL
ROSEBUD
CUSTER
FALLON
TREASURE
YELLOWSTONE
CARTER
POWDER RIVER
BIG HORN
CARBON
STILLWATER
SWEET GRASS
PARK
GALLATIN
BROADWATER
JEFFERSON
MADISON
SILVER BOW
DEER LODGE
GRANITE
RAVALLI
BEAVERHEAD
1
2
3
4
5
6
8
9
10
11
12
Plentywood
Glasgow AFB
Glasgow Intl.
Wolf Point
Malta
Havre
Shelby
FSS Cut Bank
Conrad
Kalispell
Polson
FSS Great Falls
ARSR ARTCC ASR
Malmstrom AFB
FSS Lewistown
Jordan
Glendive
Sidney
FSS Missoula
Drummond
Hamilton
FSS Helena
Anaconda
FSS Butte
Whitehall
FSS (Belgrade) Bozeman
FSS Livingston
FSS Billings ASR
Roundup
Miles City
Broadus
Red Lodge
Dillon
West Yellowstone
TO SPOKANE, WASH 70 NM
MULLAN IDAHO
TO LEWISTON, IDAHO 89 NM
SALMON
TO DUBOIS IDAHO 26 NM 30 NM
TO DUNOIR, WYO 79 NM
TO CODY WYO 21 NM
TO BOYSON RES. WYO 66 NM
TO SHERIDAN, WYO 9 NM
TO DUPREE S DAK 103 NM
TO DICKINSON N DAK 51 NM
TO WILLISTON N DAK 22 NM; 17 NM, 8 NM
V430
V2
V120
V536
V446
V231
V187
V257
V21
V343
V86
V2-86
V19
V19W
V19-120
V19W-187
V187W
V465
V19E
V19-86
V2N
LEGEND
NAVAIDS
NDB (FEDERAL)
NDB (NON FEDERAL)
VOR
VOR (NON FEDERAL)
VORTAC
LIMITED REMOTE COMMUNICATIONS OUTLET (LRCO)
TACAN
FAN MARKER
V44
AIRWAY IDENTIFICATION
FSS: FLIGHT SERVICE STATION
ARTCC: AIR ROUTE TRAFFIC CONTROL CENTER
25°
MAGNETIC COURSE
I.L.S. FACILITY
AIRPORT LOCATION
OUTER MARKER
ASR: AIRPORT SURVEILLANCE RADAR
ARSR: AIR ROUTE SURVEILLANCE RADAR
BOUNDARIES
COUNTIES
PLANNING DISTRICTS
STATE
CANADIAN / US
SOURCE: INSTRUMENT APPROACH PROCEDURE CHARTS, ENROUTE LOW ALTITUDE CHARTS
SCALE:
0
20
40
STATUTE MILES
NAUTICAL MILES

JAN 29, 1974

MONTANA STATE AIRPORT SYSTEM PLAN

EXISTING NAVAIDS AND LOW ALTITUDE AIRWAYS

FIGURE II-4

TABLE II - 3

LANDING MINIMA FOR AIR CARRIER AIRPORTS

Airport	Landing Minima for Aircraft Aircraft Category A	B	C	D
BILLINGS	$\frac{200}{1/2}$			
BOZEMAN	$\frac{200}{1/2}$	$\frac{200}{1/2}$	$\frac{200}{1/2}$	$\frac{200}{3/4}$
BUTTE	$\frac{2000}{2}$			
GLASGOW	$\frac{500}{1}$			
GLENDIVE	$\frac{800}{1}$	$\frac{800}{1}$	$\frac{800}{1\text{-}1/4}$	$\frac{800}{1\text{-}1/2}$
GREAT FALLS	$\frac{200}{1/2}$			
HAVRE	$\frac{500}{1}$			
HELENA	$\frac{200}{1/2}$	$\frac{200}{1/2}$	$\frac{200}{1/2}$	$\frac{200}{3/4}$
KALISPELL	$\frac{600}{1}$	$\frac{600}{1}$	$\frac{600}{1}$	$\frac{600}{1\text{-}1/4}$
LEWISTOWN	$\frac{400}{1}$			
MILES CITY	$\frac{400}{1}$			
MISSOULA	$\frac{1000}{2}$			
SIDNEY	900	$\frac{900}{1\text{-}1/4}$	$\frac{900}{1\text{-}1/4}$	$\frac{900}{1\text{-}3/4}$
WEST YELLOWSTONE		$\frac{1800}{2}$		
WOLF POINT	$\frac{800}{1}$	$\frac{800}{1}$	$\frac{800}{1\text{-}1/2}$	$\frac{800}{2}$

Source: USC/GS - Instrument Approach procedure charts.

TABLE II - 4

MONTANA AIRPORT LOCATIONS AND OWNERSHIP

Location County	Planning District	Associated City	Ownership
BEAVERHEAD	12	Dell	State
		Dillon	County
		Wisdom	County
BIG HORN	7	Fort Smith	Nat. Pk. Svc.
		Hardin	County
BLAINE	4	Chinook	County
		Harlem	County
		Turner	County
BROADWATER	8	Townsend, Townsend	City/County
		Townsend, Canyon Ferry	State
CARBON	7	Bridger	City/County
		Red Lodge	City/County
CASCADE	5	Great Falls	Airport Authority
CHOUTEAU	5	Big Sandy	City/County
		Fort Benton	City/County
		Geraldine	City/County
CUSTER	3	Miles City	City/County
DANIELS	1	E. Poplar	County
		Scobey	City/County
DAWSON	2	Glendive	City/County
DEER LODGE	12	Anaconda	City/County
FALLON	3	Baker	City/County
FERGUS	6	Denton	City/County
		Lewistown	City/County
		Winifred	City/County
FLATHEAD	10	Kalispell City	City
		Kalispell G.P.I.	County
		Meadow Creek	U.S.F.S.

TABLE II - 4 (Continued)

Location		Associated	Ownership
County	Planning District	City	
FLATHEAD (Cont'd.)		Schafer	U.S.F.S.
		Spotted Bear	U.S.F.S.
		Whitefish	County
GALLATIN	9	Three Forks	City/County
		Bozeman	Apt.Authority
		W. Yellowstone (Seasonal)	State
GARFIELD	2	Jordan	County
GLACIER	5	Babb	State
		Browning	State
		Cut Bank	City/County
GOLDEN VALLEY	6	Lavina	County
		Ryegate	County
GRANITE	12	Drummond	County
		Philipsburg	City/County
HILL	4	Havre	City/County
JEFFERSON		No MSASP Airports	
JUDITH BASIN	6	Stanford	County
LAKE	10	Polson	City/County
		Ronan	County
		St. Ignatius	County
LEWIS & CLARK	8	Augusta	County
		Benchmark	U.S.F.S.
		Helena	City/County
		Lincoln	State
		Wolf Creek	State
LIBERTY	4	Chester	City/County
		Tiber Dam	State
LINCOLN	10	Eureka	City/County
		Fortine	Private
		Libby	City/County
		Troy	U.S.F.S.
MADISON	12	Ennis	Private
		Twin Bridges	City/County
McCONE	2	Circle	City/County

TABLE II - 4 (Continued)

Location County	Planning District	Associated City	Ownership
MEAGHER	9	White Sulphur Spr.	City/County
MINERAL	11	Superior	County
MISSOULA	11	Clinton	State
		Condon	U.S.F.S.
		Missoula	County
		Seely Lake	County
MUSSELSHELL	6	Roundup	City/County
PARK	9	Livingston	City/County
PETROLEUM	6	No MSASP Airports	
PHILLIPS	1	Malta	City/County
		Morgan	County
PONDERA	5	Valier	City/County
		Conrad	City/County
POWDER RIVER	3	Broadus City	County
		Broadus Belle Cr.	Private
POWELL	12	Deer Lodge	City/County
PRAIRIE	2	Terry	Apt. Authority
RAVALLI	11	Hamilton	City/County
		Stevensville	County
RICHLAND	2	Fairview	County
		Sidney	City/County
ROOSEVELT	1	Culbertson	City/County
		Poplar	City/County
		Wolf Point	City/County
ROSEBUD	3	Ashland	County
		Forsyth	County
SANDERS	11	Hot Springs	County
		Plains	County
		Thompson Falls	County
SHERIDAN	1	Medicine Lake	City/County
		Plentywood	City/County
SILVER BOW	12	Butte	County

TABLE II - 4 (Continued)

Location County	Planning District	Associated City	Ownership
STILLWATER	7	Columbus	City/County
SWEET GRASS	7	Big Timber	County
TETON	5	Choteau	City/County
		Dutton	City/County
		Fairfield	City/County
TOOLE	5	Shelby	City/County
		Sweet grass	State
TREASURE	3	Hysham	County
VALLEY	1	Glasgow International	City/County
		Opheim	City/County
WHEATLAND	6	Harlowton	County
WIBAUX	2	No MSASP Airports	
YELLOWSTONE	7	Billings	City
		Laurel	City

Sources: MSASP inventory and calculations.

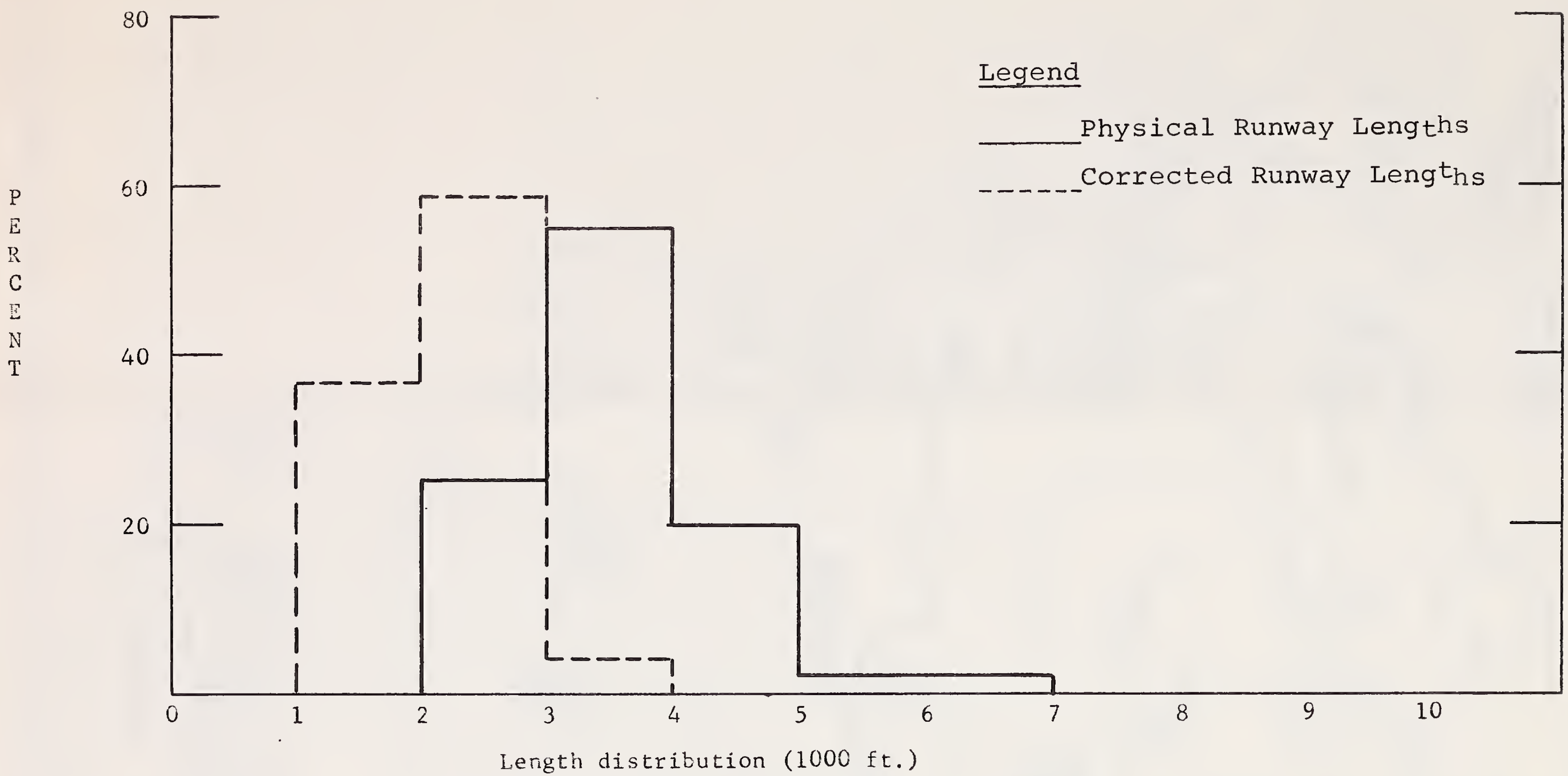
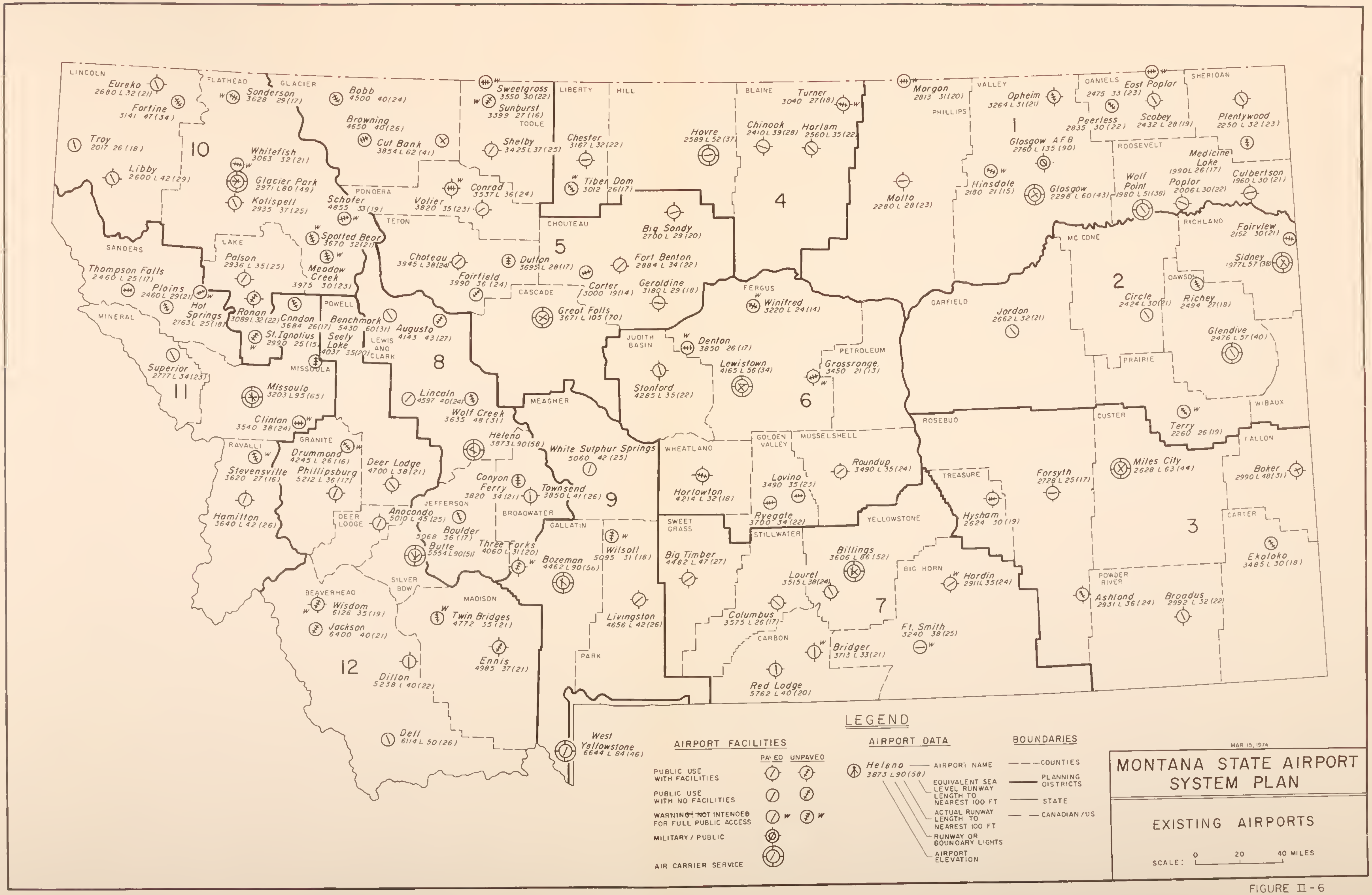


FIG. II-5 Distribution of physical and corrected runway lengths for general aviation airports of Montana.


LINCOLN
FLATHEAD
GLACIER
TOOLE
LIBERTY
HILL
BLAINE
PHILLIPS
VALLEY
DANIELS
SHERIDAN
ROOSEVELT
PONDERA
TETON
CHOUTEAU
SANDERS
LAKE
MINERAL
MISSOULA
POWELL
LEWIS AND CLARK
CASCADE
FERGUS
JUDITH BASIN
PETROLEUM
GARFIELD
MC CONE
RICHLAND
DAWSON
PRAIRIE
WIBAUX
MEAGHER
ROSEBUD
CUSTER
FALLON
GOLDEN VALLEY
MUSSELSHELL
WHEATLAND
GRANITE
RAVALLI
DEER LODGE
JEFFERSON
BROADWATER
GALLATIN
SWEET GRASS
STILLWATER
YELLOWSTONE
TREASURE
BIG HORN
CARBON
CARTER
POWDER RIVER
SILVER BOW
BEAVERHEAD
MADISON
PARK
1
2
3
4
5
6
7
8
9
10
11
12
Eureka 2680 L 32 (21)
Fortine 3141 47 (34)
Troy 2017 26 (18)
Libby 2600 L 42 (29)
W Sanderson 3628 29 (17)
Babb 4500 40 (24)
Browning 4650 40 (26)
Cut Bank 3854 L 62 (41)
W Sweetgrass 3550 30 (22)
W Sunburst 3399 27 (16)
Shelby 3425 L 37 (25)
Chester 3167 L 32 (22)
W Tiber Dam 3012 26 (17)
W Conrad 3537 L 36 (24)
Valier 3820 35 (23)
Schafer 4855 33 (19) W
Whitefish 3063 32 (21) W
Glacier Park 2971 L 80 (49)
Kalispell 2935 37 (25)
Spotted Bear 3670 32 (21)
W Meadow Creek 3975 30 (23)
Polson 2936 L 35 (25)
Ronan 3089 L 32 (22)
Condon 3684 26 (17)
W St. Ignatius 2990 25 (15)
W Hot Springs 2763 L 25 (18)
Plains 2460 L 29 (21)
Thompson Falls 2460 L 25 (17)
Superior 2777 L 34 (23)
Missoula 3203 L 95 (65)
Clinton 3540 38 (24) W
Seeley Lake 4037 35 (20)
Benchmark 5430 60 (31)
Augusta 4143 43 (27)
Choteau 3945 L 38 (24)
Fairfield 3990 36 (24)
Dutton 3695 L 28 (17)
Great Falls 3671 L 105 (70)
Carter 3000 19 (14)
Geraldine 3180 L 29 (18)
Fort Benton 2884 L 34 (22)
Big Sandy 2700 L 29 (20)
Havre 2589 L 52 (37)
Chinook 2410 L 39 (28)
Harlem 2560 L 35 (22)
Turner 3040 27 (18) W
W Morgan 2813 31 (20)
Malta 2280 L 28 (23)
Opheim 3264 L 31 (21)
W Hinsdale 2180 21 (15)
Glasgow AFB 2760 L 135 (90)
Glasgow 2298 L 60 (43)
Peerless 2835 30 (22)
W East Poplar 2475 33 (23)
Scobey 2432 L 28 (19)
Plentywood 2250 L 32 (23)
Medicine Lake 1990 L 26 (17)
Wolf Point 1980 L 51 (38)
Poplar 2006 L 30 (22)
Culbertson 1960 L 30 (21)
Fairview 2152 30 (21)
Sidney 1977 L 57 (38)
Richey 2494 27 (18)
Circle 2424 L 30 (21)
Glendive 2476 L 57 (40)
Jordan 2662 L 32 (21)
W Winifred 3220 L 24 (14)
W Denton 3850 26 (17)
Lewistown 4165 L 56 (34)
Grassrange 3450 21 (13) W
Stanford 4285 L 35 (22)
Lincoln 4597 40 (24)
Wolf Creek 3635 48 (31)
Helena 3873 L 90 (58)
White Sulphur Springs 5060 42 (25)
Roundup 3490 L 35 (24)
Lavina 3490 35 (23)
Ryegate 3700 34 (22)
Harlowton 4214 L 32 (18)
Drummond 4245 L 26 (16) W
Philipsburg 5212 L 36 (17)
Deer Lodge 4700 L 38 (21)
W Stevensville 3620 27 (16)
Hamilton 3640 L 42 (26)
Anaconda 5010 L 45 (25)
Canyon Ferry 3820 34 (21)
Townsend 3850 L 41 (26)
Boulder 5068 36 (17)
Butte 5554 L 90 (51)
Three Forks 4060 L 31 (20) W
Bozeman 4462 L 90 (56)
W Wilsall 5095 31 (18)
Big Timber 4482 L 47 (27)
Livingston 4656 L 42 (26)
Columbus 3575 L 26 (17)
Laurel 3515 L 38 (24)
Billings 3606 L 86 (52)
W Hardin 2911 L 35 (24)
Ft. Smith 3240 38 (25) W
W Bridger 3713 L 33 (21)
Red Lodge 5762 L 40 (20)
Hysham 2624 30 (19)
Forsyth 2728 L 25 (17)
Miles City 2628 L 63 (44)
W Terry 2260 26 (19)
Baker 2990 L 48 (31)
Ekalaka 3485 L 30 (18)
Ashland 2931 L 36 (24)
Broadus 2992 L 32 (22)
W Wisdom 6126 35 (19)
Jackson 6400 40 (21)
W Twin Bridges 4772 35 (21)
Ennis 4985 37 (21)
Dillon 5238 L 40 (22)
Dell 6114 L 50 (26)
West Yellowstone 6644 L 84 (46)
LEGEND
AIRPORT FACILITIES
PAVED
UNPAVED
PUBLIC USE WITH FACILITIES
PUBLIC USE WITH NO FACILITIES
WARNING - NOT INTENDED FOR FULL PUBLIC ACCESS
W
W
MILITARY / PUBLIC
AIR CARRIER SERVICE
AIRPORT DATA
Helena 3873 L 90 (58)
AIRPORT NAME
EQUIVALENT SEA LEVEL RUNWAY LENGTH TO NEAREST 100 FT
ACTUAL RUNWAY LENGTH TO NEAREST 100 FT
RUNWAY OR BOUNDARY LIGHTS
AIRPORT ELEVATION
BOUNDARIES
COUNTIES
PLANNING DISTRICTS
STATE
CANADIAN / US
MAR 15, 1974
SCALE: 0 20 40 MILES

MONTANA STATE AIRPORT SYSTEM PLAN

EXISTING AIRPORTS

FIGURE II - 6

The on-site inventory revealed that on the average a general aviation airport has 4.8 based aircraft, although one-half of the airports have two or less.

Based aircraft as obtained from field inventory and Federal Aviation Administration forms 5010 are shown by county and by planning districts in Figure II-7. The largest number of registered aircraft are in Districts 7, 5 and 11, and in Yellowstone, Missoula and Cascade Counties, which include Billings, Great Falls and Missoula.

f. Operations

From inventory figures for the 1972 base year it is estimated that the average general aviation airport in Montana has approximately 2,800 operations per year; however, just as in the case of based aircraft, half of the airports have 1,200 annual operations or less.

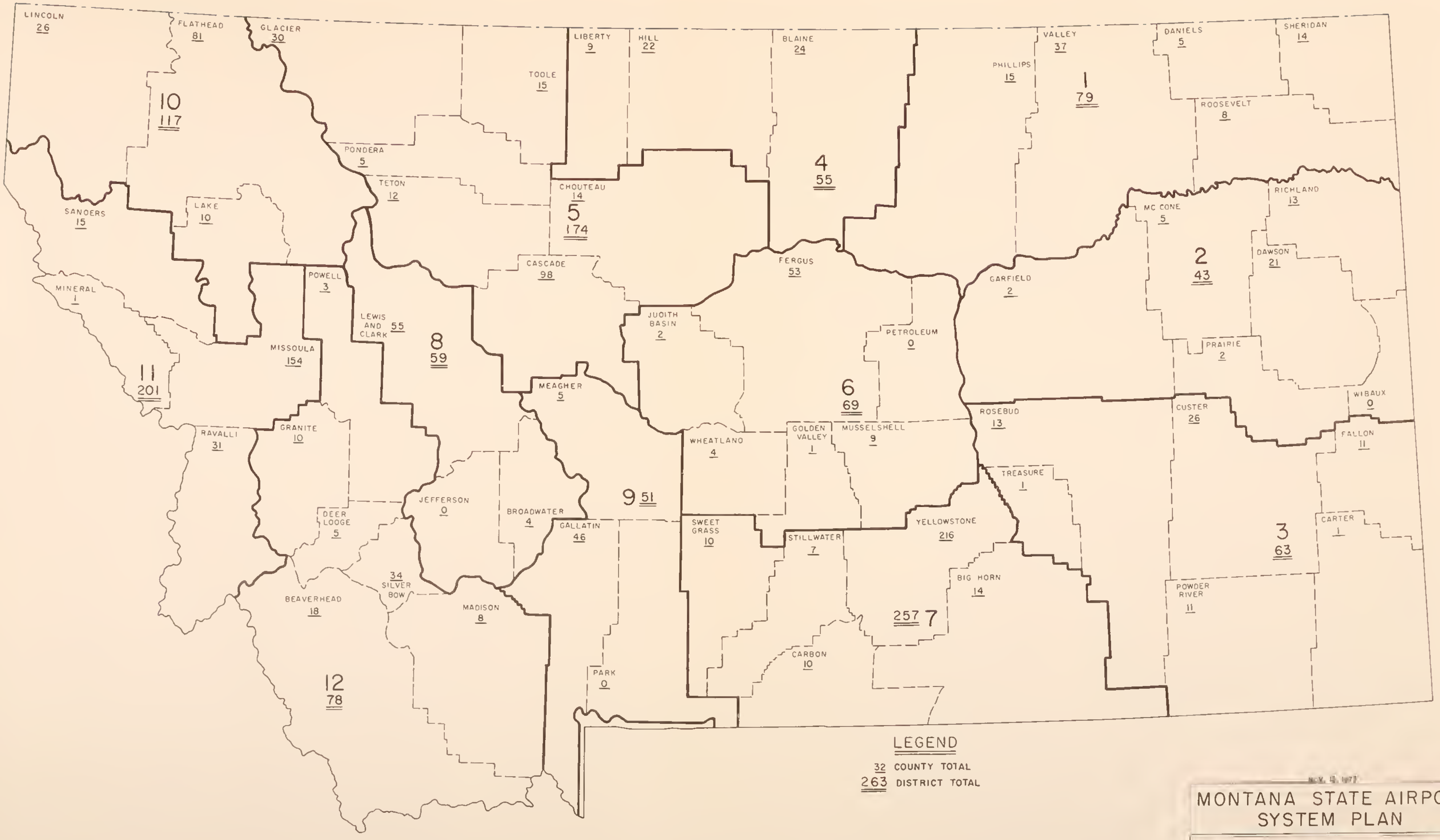
g. Physical Data on the Airports and Their Environs is included in Appendix I, No. 3.

3. Military Activity

Two airports are owned by the U.S. Air Force, one at Malmstrom Air Force Base at Great Falls, the other at Glasgow Air Force Base. Both airports have adequate field length to accommodate large jet transport aircraft. Malmstrom AFB is equipped with an ILS and VORTAC, and Glasgow AFB has an ILS only.

4. Other Activity

At this time, there are no commuter air carriers linking the Montana airports with passenger service. Air Mail lines feed Billings, Great Falls, Helena, Kalispell International, Miles City and Wolf Point.


LINCOLN 26
FLATHEAD 81
GLACIER 30
TOOLE 15
LIBERTY 9
HILL 22
BLAINE 24
PHILLIPS 15
VALLEY 37
DANIELS 5
SHERIDAN 14
ROOSEVELT 8
1 79
10 117
PONDERA 5
TETON 12
CHOUTEAU 14
5 174
4 55
SANDERS 15
LAKE 10
RICHLAND 13
MC CONE 5
2 43
DAWSON 21
MINERAL 1
POWELL 3
CASCADE 98
FERGUS 53
GARFIELD 2
LEWIS AND CLARK 55
8 59
JUDITH BASIN 2
PETROLEUM 0
MISSOULA 154
PRAIRIE 2
11 201
MEAGHER 5
6 69
WIBAUX 0
ROSEBUD 13
CUSTER 26
FALLON 11
RAVALLI 31
GRANITE 10
WHEATLAND 4
GOLDEN VALLEY 1
MUSSELSHELL 9
TREASURE 1
JEFFERSON 0
9 51
BROADWATER 4
DEER LODGE 5
GALLATIN 46
SWEET GRASS 10
STILLWATER 7
YELLOWSTONE 216
CARTER 1
3 63
34 SILVER BOW
BEAVERHEAD 18
MADISON 8
BIG HORN 14
257 7
POWDER RIVER 11
CARBON 10
PARK 0
12 78
LEGEND
32 COUNTY TOTAL
263 DISTRICT TOTAL

NOV. 9, 1977

MONTANA STATE AIRPORT
SYSTEM PLAN

BASED AIRCRAFT BY COUNTY
AND PLANNING DISTRICT

SCALE . 0 20 40 MILES

SOURCE: FIELD INVENTORY AND FEDERAL AVIATION ADMINISTRATION FORM 5010

FIGURE II - 7

C. Environment and Land Use

Montana is generally unpopulated and unspoiled, thus providing a sanctuary for many species of wild animals. A large portion of the land is federally owned, consisting of forests and parks.

1. Environment

According to the 1973 World Almanac, thirty-six percent of the total land area is owned, leased or in trust by the U.S. Government. Primarily, this includes Indian land, National Forest, National Parks and Military Posts. Sixty percent of Montana's forested land is in western Montana and 40 percent in the east.

The climate is influenced by high latitude and elevation so that the temperature ranges from -42°F to +105°F. The normal maximum July temperature is 84° compared to 76° for Michigan or 87° for Georgia. This wide range of temperature variation complicates airport facility planning.

Montana is one of the few states where wild game animals can still be found in abundance. Such species as antelope, grizzly bear, white-tail deer, elk, mountain goat, moose, mountain sheep and black bear are prevalent. The estimated total of wild animals is 300,000.

Most of Montana's wildlife inhabits the National Forests and Parks where little aviation activity is expected;

however, none of the mountainous or sparsely settled areas can be assumed to be lacking in animal life. West Yellowstone is the only air carrier airport located in close proximity of a National Forest and its impact is studied in detail in Appendix 1, No. 3.

With respect to the problem of population and airport noise, several airports - Butte, Missoula, Great Falls and Helena - either have air carrier approach and takeoff paths authorized over urban areas or have taken special precautions to prevent undue disruption. Helena is in the latter category, as the traffic patterns are to the north, away from the central business district and built-up residential areas. Very few citizen complaints have been registered with Montana airports.

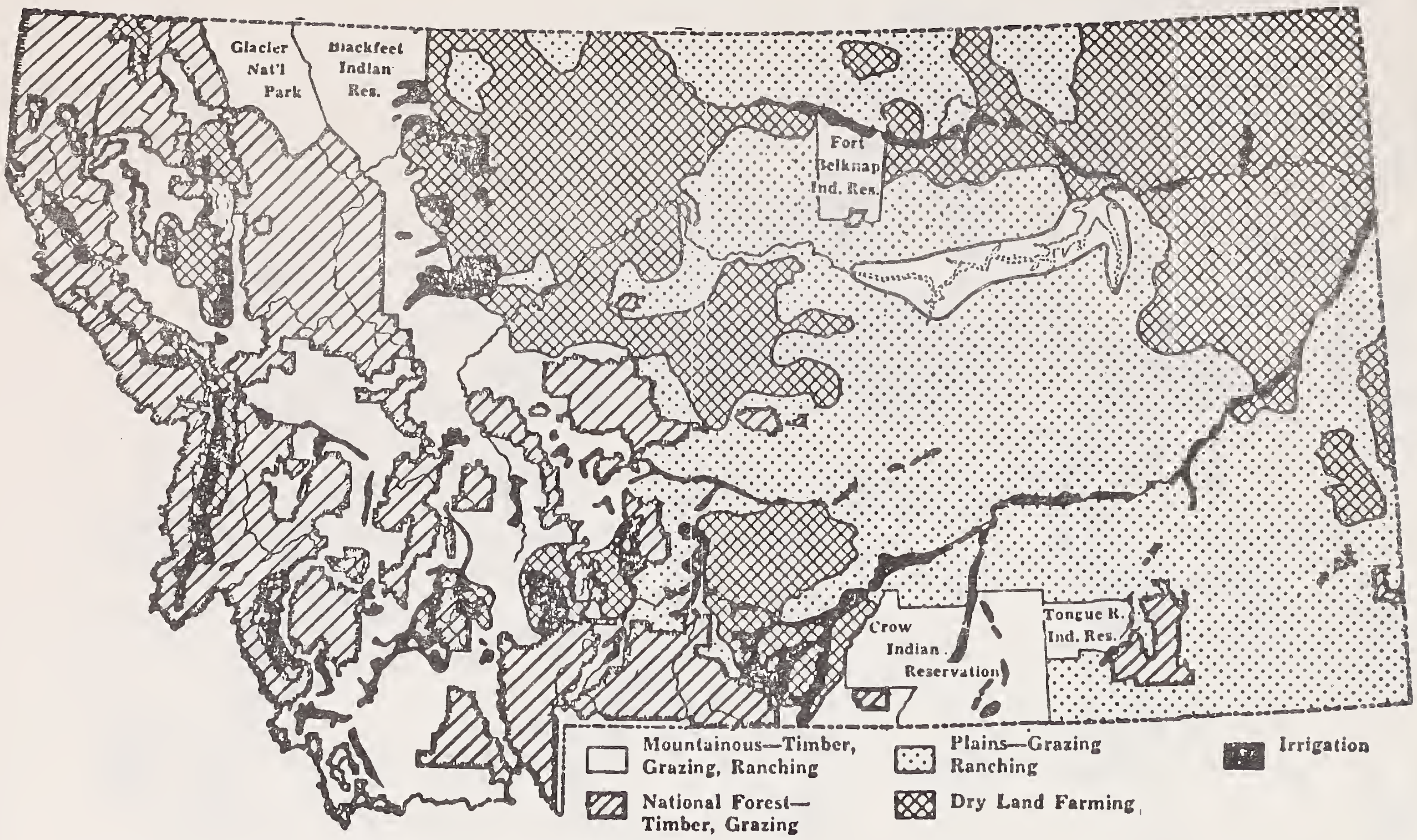
2. Land Use

An overview of the present land use of Montana is shown in Figure II-8. It is pertinent that in general, Montana has large portions of National Forest, plains, grazing and timber.

D. Alternate Modes of Transportation

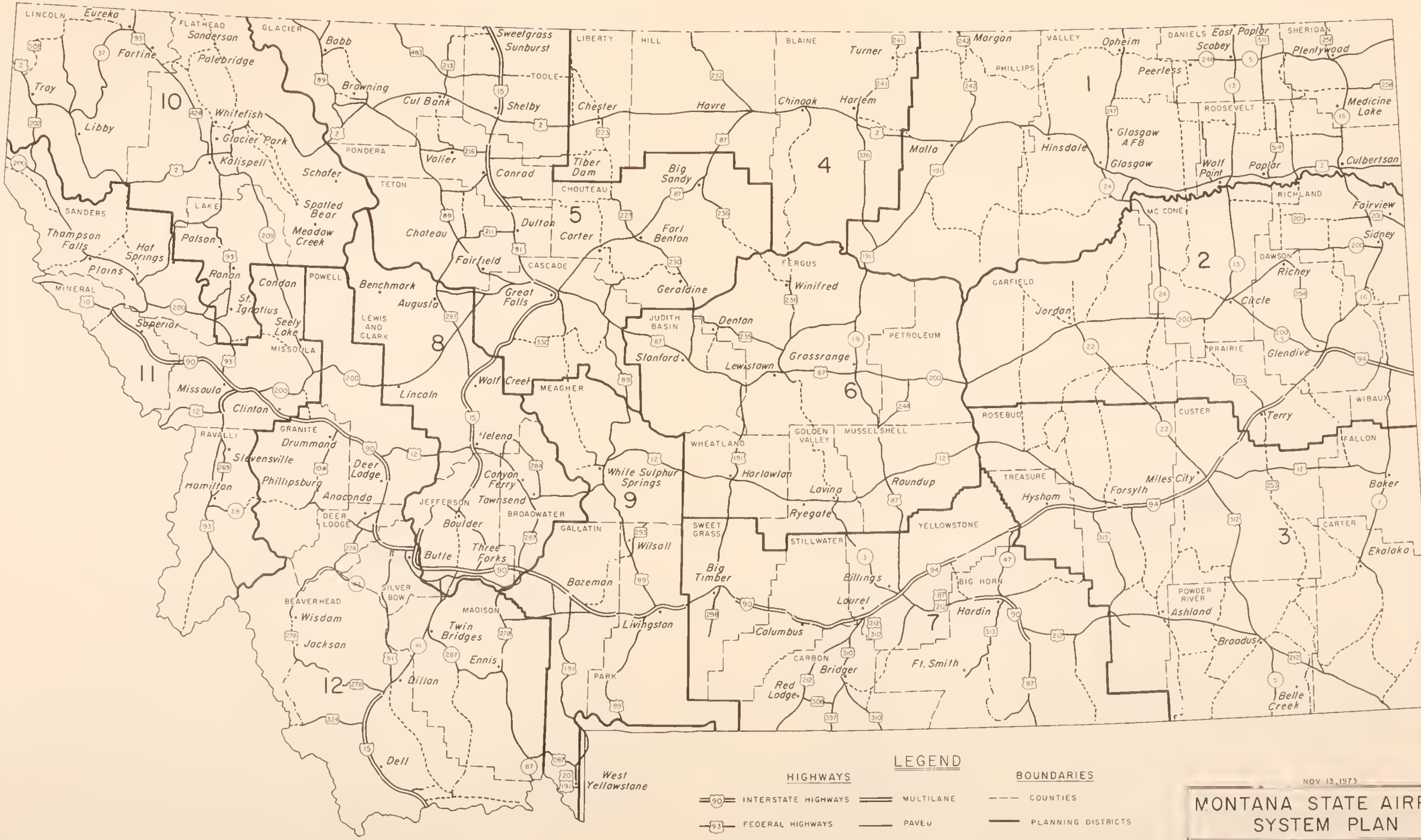
Highway and railway maps are shown in Figures II-9 and II-10. The highway system reflects planning by the Montana State Highway Commission.

FIGURE II- 8


Glacier Nat'l Park
Blackfeet Indian Res.
Fort Belknap Ind. Res.
Crow Indian Reservation
Tongue R. Ind. Res.
Mountainous—Timber, Grazing, Ranching
National Forest—Timber, Grazing
Plains—Grazing Ranching
Dry Land Farming
Irrigation

Source: Montana State College, Agricultural Experiment Station and Extension Service, Montana Agriculture Basic Facts, Bulletin No. 293, Bozeman, 1956.

GENERAL LAND USE , MONTANA


LINCOLN
Eureka
FLATHEAD
Sandersan
GLACIER
Babb
Sweetgrass
Sunburst
LIBERTY
HILL
BLAINE
Turner
Margan
VALLEY
Opheim
DANIELS
East Paplar
Scobey
SHERIDAN
Plentywood
Fartine
Palebridge
Tray
10
Browning
Cul Bank
TOOLE
Shelby
Chester
Havre
Chinaak
Harlem
PHILLIPS
1
Peerless
Medicine Lake
Libby
Whitefish
Glacier Park
Kalispell
PONDERA
Valier
Conrad
Tiber Dam
4
Malla
Hinsdale
Glasgaw AFB
Glasgaw
ROOSEVELT
Walf Paint
Paplar
Culbertsan
Schafer
TETON
CHOUTEAU
Big Sandy
RICHLAND
Fairview
SANDERS
LAKE
Spatted Bear
Meadow Creek
Chateau
Dutton
5
Carter
Fart Benton
MC CONE
Sidney
Thampson Falls
Palson
Hat Springs
Plains
Ronan
Fairfield
CASCADE
Geraldine
FERGUS
Winifred
2
DAWSON
Richey
Circle
MINERAL
Condan
POWELL
Benchmark
Augusta
Great Falls
GARFIELD
Jordan
St. Ignatius
Seely Lake
LEWIS AND CLARK
JUDITH BASIN
Denton
PETROLEUM
Superior
MISSOULA
8
Stanford
Grassrange
Lewistown
PRAIRIE
Glendive
11
Missoula
Wolf Creek
Lincoln
MEAGHER
6
WIBAUX
Clinton
ROSEBUD
CUSTER
Terry
GRANITE
RAVALLI
Helena
WHEATLAND
GOLDEN VALLEY
MUSSELSHELL
FALLON
Drummand
Stevensville
Deer Lodge
Canyon Ferry
White Sulphur Springs
Harlowtan
Lavina
Roundup
TREASURE
Miles City
Baker
Hamilton
Phillipsburg
Anaconda
JEFFERSON
Townsend
9
Hysham
Forsyth
DEER LODGE
Boulder
BROADWATER
Ryegate
YELLOWSTONE
CARTER
GALLATIN
SWEET GRASS
STILLWATER
3
Wilsall
Three Forks
Butte
Big Timber
Billings
BIG HORN
Ekalaka
SILVER BOW
Bozeman
BEAVERHEAD
Wisdam
MADISON
Laurel
POWDER RIVER
Ashland
Twin Bridges
Livingstan
7
Hardin
Jackson
Columbus
Ennis
CARBON
Broadus
Bridger
Ft. Smith
Dillon
12
PARK
Red Lodge
Belle Creek
Dell
West Yellowstone

LEGEND

HIGHWAYS

(90)	INTERSTATE HIGHWAYS	MULTILANE
(93)	FEDERAL HIGHWAYS	PAVED
(87)	STATE HIGHWAYS	GRAVELLED
(216)	OTHER	UNSURFACED

BOUNDARIES

- COUNTIES
- PLANNING DISTRICTS
- STATE
- CANADIAN / US

AIRPORT LOCATIONS INDICATED BY •

SOURCES
1) MONTANA DEPT OF HIGHWAYS, OFFICIAL 1972 HIGHWAY MAP OF MONTANA
2) FAA FORM 5010

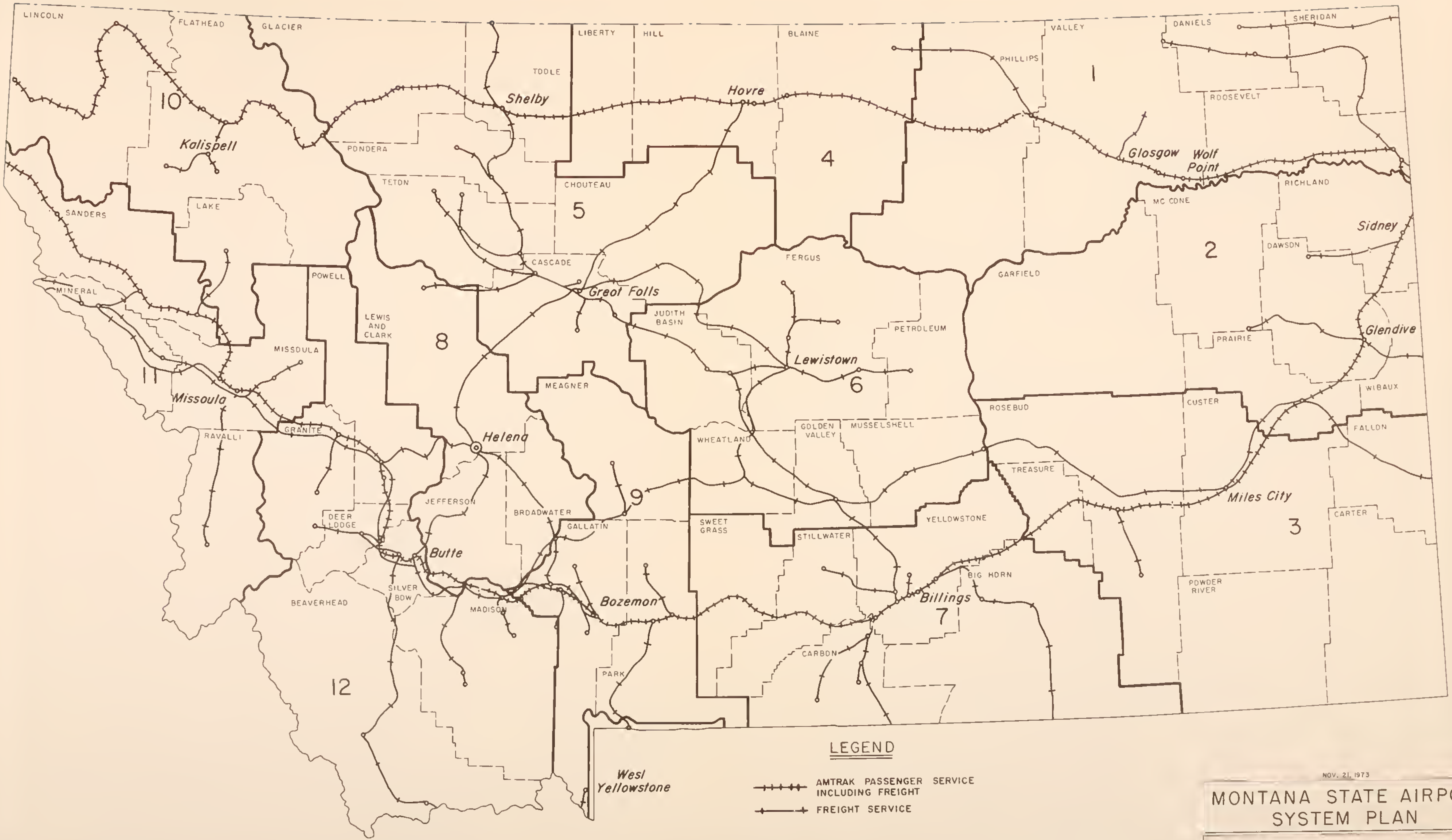
NOV 13, 1973

MONTANA STATE AIRPORT SYSTEM PLAN

PRINCIPAL HIGHWAYS AND PUBLIC AIRPORT LOCATIONS

SCALE: 0 20 40 MILES

FIGURE II - 9


LINCOLN
FLATHEAD
GLACIER
LIBERTY
HILL
BLAINE
VALLEY
DANIELS
SHERIDAN
TOOLE
PHILLIPS
1
10
Shelby
Hovre
ROOSEVELT
Kalispell
PONDERA
Glosgow
Wolf Point
4
TETON
CHOUTEAU
RICHLAND
SANDERS
LAKE
5
MC CONE
Sidney
2
DAWSON
FERGUS
CASCADE
GARFIELD
MINERAL
POWELL
Greot Folls
JUDITH BASIN
LEWIS AND CLARK
8
PETROLEUM
Glendive
PRAIRIE
MISSOULA
Lewistown
6
11
MEAGHER
Missoula
WIBAUX
ROSEBUD
CUSTER
FALLON
GRANITE
GOLDEN VALLEY
MUSSELSHELL
RAVALLI
Helena
WHEATLAND
TREASURE
JEFFERSON
9
Miles City
BROADWATER
DEER LODGE
3
CARTER
SWEET GRASS
YELLOWSTONE
GALLATIN
STILLWATER
Butte
BIG HORN
SILVER BOW
Billings
BEAVERHEAD
Bozemon
MADISON
7
POWDER RIVER
CARBON
PARK
12
West Yellowstone
LEGEND
AMTRAK PASSENGER SERVICE INCLUDING FREIGHT
FREIGHT SERVICE

NOV. 21, 1973

MONTANA STATE AIRPORT SYSTEM PLAN

PRESENT RAIL SYSTEM

SCALE . 0 20 40 MILES

"SOURCE: ASSOCIATION OF AMERICAN RAILROADS AND AMTRAK"

FIGURE II - 10

1. Highways

Montana is unique in its policy of not imposing a daytime speed limit. As a result, ground travel over most of the state is relatively fast. As population increases this situation probably will be continued by the improvement of the road network. A study, the "Montana Highways Functional Classification and Needs Study 1970-1990" summarized the various mileages of Montana highways as shown in Table II-5.

In some cases, roads between small towns are not paved. Also, many paved roads have steep gradients and cannot be used during parts of the winter. This situation compounds the need for airports and serves as a special criterion for affected airports to enter into the National Airport System Plan.

The highways serving each airport are analyzed for overall adequacy and noteworthy items about airports are stated in Appendix I, No. 3, which lists airports individually.

2. Railways

In addition to freight service, the East/West direction is served by two AMTRAK lines as shown in Figure II-10.

TABLE II - 5

HIGHWAY MILEAGE

CLASS	1968	1990
Interstate	574.6	1,135.7
Other Principal Arterials	2,283.6	1,991.3
Minor Arterials	3,931.2	3,741.9
Major Collectors	4,878.4	5,248.9
Minor Collector	10,192.2	11,022.8
Local Roads	44,044.5	43,847.4
Total *	65,904.9	66,988.0

*Does not include Type A (Primitive road miles).

Sources: Menasco McGuinn - Montana Highway functional classification and needs study 1970-1990

There is no AMTRAK service in the north-south direction, but Butte, Billings and Bozeman have freight service from the south.

The railway mileage in Montana for selected years is shown in Table II-6.

E. National Airport System Plan (NASP) Development Worksheets

The Montana State Airport System Plan as published herein sets forth inventory, forecasts, and development requirement information which can be used as baseline development guide for the state for a twenty-year period.

Proper utilization of the extension data presented can best be done in a computer format. For that reason the various data gathered or generated during the study was transcribed to computer sheets designed by the FAA as shown in Order No. 5090.3, change 1.

F. References - Chapter II

1. U. S. Civil Aeronautics Board and U. S. Federal Aviation Administration. Airport Activity Statistics of Certificated Route Air Carriers, Washington, 1962-1971.

2. U. S. Federal Aviation Administration. FAA Air Traffic Activity, Washington, 1962-1971.

3. U. S. Federal Aviation Administration. Census of U.S. Civil Aircraft, Washington, 1972.

4. U. S. Federal Aviation Administration. Terminal Area Air Traffic Relationships, Washington, 1967-1971.

TABLE II - 6
RAILWAYS, MILEAGE, MONTANA SELECTED YEARS, 1950 to 1968 (AS OF DECEMBER 31)

Year	Mileage	Miles of Railway Per 1,000 Population	Miles of Railway Per 1,000 Sq. Mi.
1968	4,926		
Montana	-	7.1	33.4
Rocky Mtn. States	-	3.1	28.9
No. Mtn./Gt. Plains States	-	6.3	38.7
United States		1.0	57.8
1967	4,937	7.1	33.6
1966	4,937	7.0	33.6
1965	4,939	7.0	33.6
1960	4,962	7.4	33.7
1950	5,059	8.6	34.4

Sources: U. S. Interstate Commerce Commission, Transport Statistics in the United States; Association of American Railroads, Yearbook of Railroad Facts.

III. ANALYSIS OF THE EXISTING SYSTEM

A. Airports

1. Air Carrier Airports

The inventory taken of Montana airports indicates that the state is adequately served by air carrier aircraft. B-707 aircraft operate non-stop between Billings and Chicago and also serve Great Falls. Seven Montana airports are served only by the 20-passenger Twin Otter aircraft and until recently, these airports were served by 56-passenger Convair 580's.

Bozeman, Butte, and Missoula are served by B-727 aircraft. Helena, Kalispell and West Yellowstone are served by B-727, DC-9, and B-737, respectively.

Glasgow, Glendive, Havre, Lewistown, Miles City, Sidney and Wolf Point, which have less than 1,000 annual air carrier operations each, are all served by Twin Otter aircraft.

A comparison of aircraft types serving the Montana cities listed above with those serving cities of similar population in other parts of the country, indicate in general, that aircraft types serving the Montana cities are at least as large as those serving similar cities.

Airline airports such as Billings, Great Falls, Helena, and Missoula, also have important general aviation functions as documented in Section II of this volume.

2. General Aviation Airports

Montana's general aviation airports generally serve light single and twin engine piston aircraft rather than jet aircraft. At this time, the smaller aircraft are adequate for their primarily agricultural uses of spraying, reconnaissance, and personal transportation.

B. Airport Locations and Characteristics

Appendix I, No. 3, describes each airport in relation to its geography and Figure II-6 illustrates the actual corrected runway lengths, surface types, lighting and other data.

With a total state land area of 146,977 square miles, the average area served by each of the 118 out of 148 public use airports is 1246 square miles, which is equivalent to a twenty-mile radius around each airport. By comparison, the Kentucky State System Plan considered 57 public-use airports in an area of 40,395 square miles or an average area per airport of 709 square miles for a 15 mile radius around each airport. Thus, the average radius of the service area for Kentucky airports is 43% less than that of Montana, -- a remarkable difference since Montana has only 6% of Kentucky's population density. The 118 public use airports are considered adequate for the Montana state aviation system study purposes.

The average air carrier airport in Montana serves persons within a 100 mile radius, somewhat more than the 30-minute driving time considered ideal. This is due primarily to Montana's sparse population and does not imply that the state is inadequately served.

C. Physical Environment and Land Use

As stated in Section II, although some air carrier airports have flight paths in sensitive areas, Montana's General Aviation Airports have relatively few environmental problems.

Montana is fortunate in having large amounts of open land. Where airports are close to populated areas such as Helena, or Great Falls, it is still possible to develop communities in directions away from the airport.

Photographs taken in 1935 show that the area surrounding Los Angeles Airport was relatively free of homes and developments. Since that time, the airport's environ has become entirely residential and the airport pays indemnities to the people for noise damages. To prevent this from happening in Montana, it is strongly urged that whenever possible the airport owners purchase land or aviation easements, and that they encourage other governmental units to impose land use zoning around the airports to protect these areas against future incompatible land use. Such recommendations are included where applicable in the "airport by airport" descriptions in Appendix I, No. 3. In some cases, Missoula for example, it will not be practical to develop the airport farther away from the city and thus strong land use zoning should be enacted to protect the airport.

The "state of the art" of land use planning and zoning is in its infancy in Montana. Little has been done to date. However, although Montana's airports today are not plagued with environmental problems, it is imperative to seek vigorous measures to maintain the ecological status quo.

D. Other Transportation Systems

As the Inventory Section suggests, Montana has many terrain features serving as constraints to ground transportation. Moreover, the Canadian border forms a complicating factor affecting the free flow of commerce.

According to the Montana Highway Needs Study* Montana's Highway System will be increased by approximately 1000 miles. The addition is comprised primarily of Interstate Highway and minor collectors; arterials will lose mileage. This will increase the highway mileage from 65,904.9 to 66,988.0, actually a

*Menasco-McGuinn Associates, "Montana Highway Functional Classification and Needs Study, 1970-90" small addition. As is indicated by the decrease in local road (lowest class) mileage, the bulk of system improvement will be devoted to upgrading existing routes. It can be assumed that many of the presently unpaved roads will be paved by 1992, but the system and network will have nearly the same configuration as it has today.

It is also fairly safe to assume that the air transport role will become more important in the ensuing years. This form of transportation is free to operate in spite of terrain restrictions and offers many conveniences over other forms: speed, flexibility, accessibility and dependability.

E. Demand/Capacity

A demand/capacity analysis was completed for each airport using IFR and VFR requirements.

Where there are IFR problems with regard to air carrier aircraft, the following discussions relate to continued service by conventional (CTOL) aircraft and present day approach aids. However, in cases where present types of approach aids could not meet the IFR demand for conventional aircraft, another solution might be the substitution of short takeoff or landing (STOL) aircraft in air carrier service and the use of microwave landing systems (MLS). These are expected to be available well before the end of the forecast period. The Montana State Airport System plan, however, is based upon Conventional Takeoff and Landing aircraft expected during the period.

Two basic FAA advisory circulars were used in the capacity analysis:

> 150/5060-1A "Airport Capacity Criteria Used in Preparing the National Airport Plan".
>
> 150/5060-3 "Airport capacity Used in Long Range Planning".

FAA capacity ratings are predicated upon a level of four minutes as the maximum acceptable departure delay on the average, during the normal peak adjacent two hour periods of the week. For airports with only general aviation activity, the delay level is two minutes. These delay levels are not entirely fixed limits nor should the capacities shown in Appendix I, No. 3 be considered as absolute. They are estimates for developmental purposes and should be considered as only a part of the airport development requisites.

Individual demand/capacity comparisons are discussed in Appendix I, No. 3. The following is a general summary of the existing situation.

1. Air Carrier Airports

Billings, Bozeman, Great Falls, Helena, Missoula and Kalispell International will have capacity deficiencies during the forecast period. In these cases, a short parallel general aviation runway at each airport should alleviate the problem.

Airspace problems are discussed in Section III-F, directly following, and in Section V-F1 - Enroute NAVAIDS, and in Section V-F2 - Terminal NAVAIDS. An Airport NAVAID analysis was made by comparing existing IFR capacity with existing and future operational demand. The "airport by airport" results are contained in Appendix I, No. 3.

2. General Aviation Airports

General aviation airports will not experience runway capacity deficiencies. A basic single runway configuration without a parallel taxiway is usually sufficient. However, Advisory Circular 150/5060-3 assumes exit ratings of 1 for long range planning. Thus, additional taxiways and exits may, therefore, be necessary to develop the required airport capacity.

F. Present Airspace Utilization

In general, none of the airports in Montana are presently operating anywhere near capacity.

General Aviation questionnaires were mailed to all airports during September 1972 to ascertain the routes of flights most used by General Aviation aircraft in the Montana Area, and thereby determine whether additional civil airways were needed. The returns from these questionnaires were disappointing. The small number of recorded flight plans failed to show enough traffic on any non-airway route to justify the commissioning of additional route segments.

Better data about busier routes can be obtained from a sample of flight plans filed at each location. The latest FAA figures available for such a survey are included in "Air Traffic Patterns for IFR and VFR Aviation" for calendar year 1971. Table III-1 lists these data for Montana airports based on a 1/50 sample of general aviation flight plans filed at flight service stations.

As shown in Table III-1, nearly three-fourths of the flight plans filed at Montana flight service stations or combined station/towers are for VFR flight. The actual percentage varies from 100% at Lewistown to 58% at Great Falls. Table III-2 summarizes the number of flight plans filed by different methods.

Present navigation facilities are shown in Figure II-4. Table II-3 lists the instrument approach procedures and weather minima presently authorized for the various airports.

Table III-3 shows the distribution of VFR traffic by altitude. Nearly all the general aviation VFR traffic is concentrated at altitudes below 10,000 feet.

TABLE III - 1

TYPE OF FLIGHT PLANS FILED AT MONTANA FSS[1/] OR CST[2/] FACILITIES - 1971

FSS or CST	Total (Sample)	IFR (Sample)	VFR (Sample)	% IFR	% VFR
Billings	182	55	127	30	70
Bozeman	36	13	23	36	64
Butte	36	11	25	31	69
Cut Ban	37	7	30	19	81
Dillon	40	1	39	2	98
Gt. Falls	354	150	204	42	58
Helena	81	12	69	15	85
Lewistown	33	0	33	0	100
Livingston	24	4	20	17	83
Miles City	98	9	89	9	91
Missoula	175	33	142	19	81
TOTAL	1,096	295	801	27	73

[1/] FSS - Flight Service Station

[2/] CST - Combined Station Tower

Source: "Air Traffic Patterns for IFR and VFR Aviation" - FAA - June 1972.

TABLE III - 2

FLIGHT PLANS FILED AT MONTANA FLIGHT SERVICE STATIONS AND COMBINED STATION/TOWERS - 1971 *

STATION	TOTAL FLIGHT PLANS	IN PERSON	REGULAR PHONE	FLT. ASST. INTERPHONE	RADIO	FOR XCHG PHONE	MIL TIE LINE	OTHER
Gt. FALLS	17,000	3,100	2,600		3,550		5,400	3,050
BILLINGS	9,100	1,350	650	4,000	3,050			50
MISSOULA	8,750	1,750	2,550		4,450			
MILES CITY	4,900	1,300	650		2,500	450		
HELENA	4,050	400	100	2,100	1,450			
DILLON	2,000	1,550			450			
CUT BANK	1,850	1,150						
BOZEMAN	1,800	500	650		650			
BUTTE	1,800	650	500		650			
LEWISTOWN	1,650	750	250		650			
LIVINGSTON	1,200	750	50		400			
TOTALS	54,800	13,250	8,000	6,100	18,500	450	5,400	3,100
PERCENT	100	24	15	11	34	1	10	6

* Estimated from 1/50 Sample

Source: "Air Traffic Patterns for IFR & VFR Aviation" - FAA - June 1972.

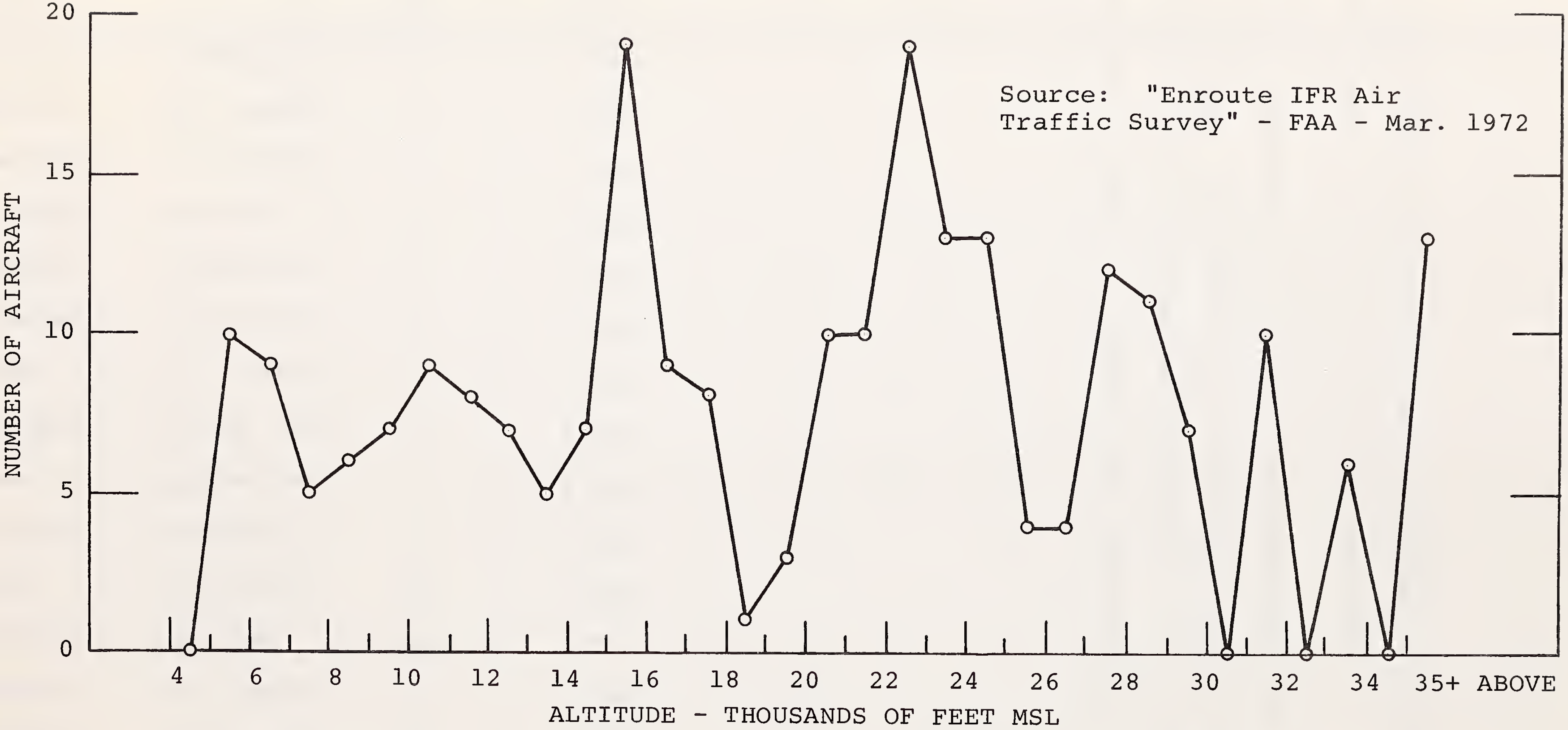
Figure III-1 shows that IFR altitude assignments in the Great Falls Area peak at 15,000 and at 22,000 feet MSL.

Figure III-2 shows the distribution of departure times by hours of the day. IFR departures in the Great Falls area appear to be concentrated between mealtimes, with a lull before breakfast, another at twelve noon, and another at 5:00 p.m.

Table III-3 BUSY ROUTES - VFR GENERAL AVIATION FLIGHT PLANS - 1971

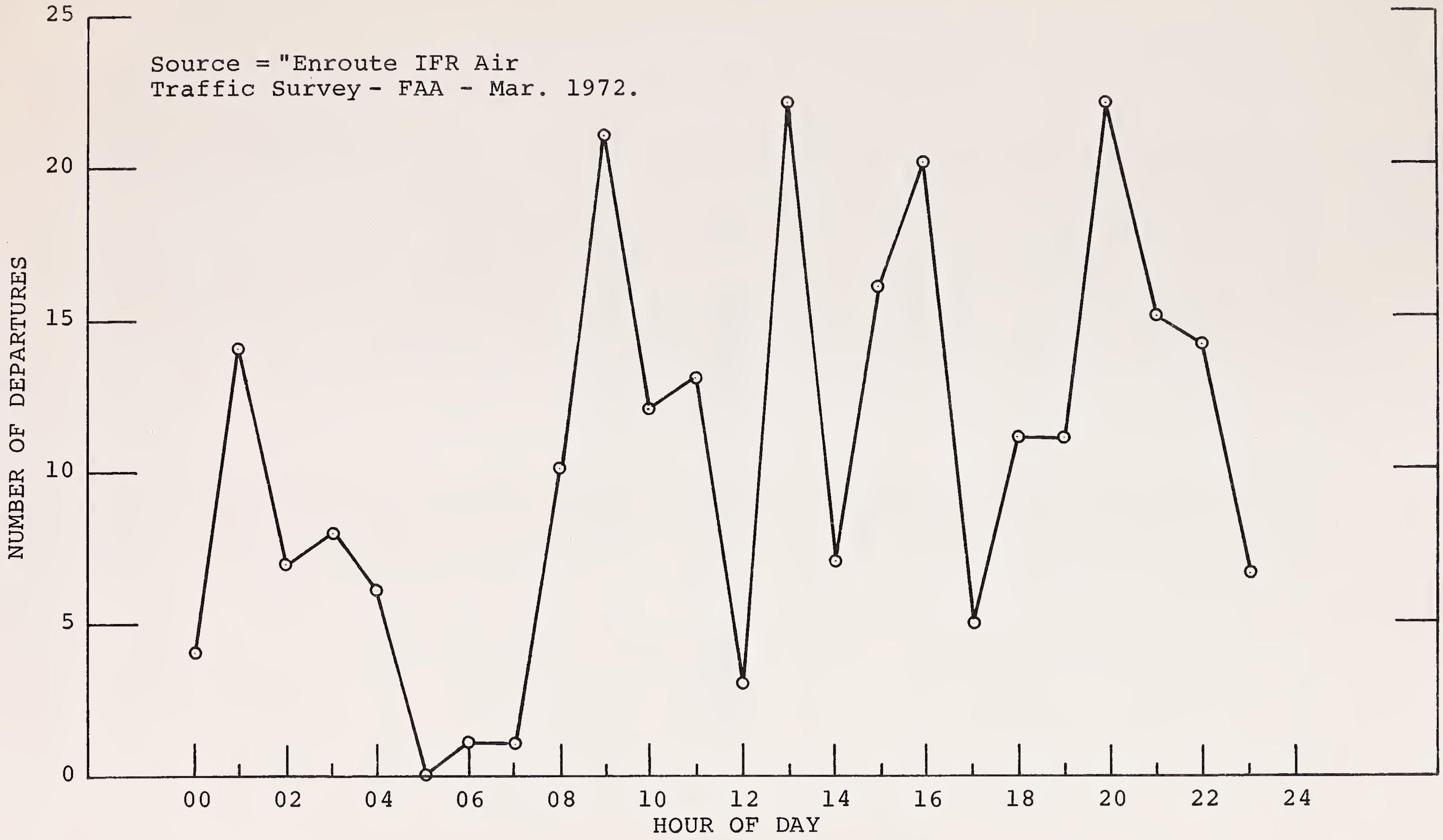
	DESTI-NATION	SAMPLE* FLIGHT PLANS	EQUIVALENT FLIGHTS PER YEAR	ALTITUDE IN THOUSANDS OF FT. MSL 5 or less	6	7	8	9	10	11	12	13	14	15 +	UNKNO
Gt. Falls	Billings	12	6,000	2		2		4		2				2	
Billings	Gt. Falls	11	5,500	4		5			1					1	
Billings	Bozeman	10	5,000	2	2		6								
Helena	Billings	10	5,000			2		5	2					1	
Gt. Falls	Missoula	9	4,500	1			4		2					2	
Helena	Missoula	9	4,500	1	1		5		1		1				
Billings	Miles City	8	4,000	3		3	1	1							
Helena	Gt. Falls	8	4,000	5	1	1	1								
Lewistown	Billings	8	4,000	4		4									
Billings	Sheridan	7	3,500	2		4								1	
Gt. Falls	Helena	7	3,500		1	1	1							4	
Miles City	Billings	7	3,500	6	1										
Missoula	Gt. Falls	7	3,500		2		2							3	
Kalispell	Missoula	7	3,500	1		1	1	1			1			1	
TOTALS		120	60,000	31	8	23	21	12	6	2	2	0	8	7	

* 1/50 SAMPLE OF FLIGHT PLANS FILED
Source: "Air Traffic Patterns for IFR and VFR Aviation" - FAA - June 1972



Source: "Enroute IFR Air Traffic Survey" - FAA - Mar. 1972

Fig. III-1 DISTRIBUTION OF ALTITUDES ASSIGNED BY GREAT FALLS CENTER TO IFR FLIGHTS - PEAK DAY FY 1971



Source = "Enroute IFR Air Traffic Survey - FAA - Mar. 1972.

FIG. III-2. DISTRIBUTION OF ACTUAL DEPARTURE TIMES - GREAT FALLS CENTER - PEAK DAY FY 1971

IV. FORECAST OF AVIATION ACTIVITY

A primary element of the State Airport System Plan is the development of a comprehensive forecast of aviation activity. Projections of aviation activity items were thus derived for all airports of the Montana State Airport System; twenty-three items for air carrier airports and eight items for general aviation airports. This chapter details the derivation of the forecasts.

A. Approach

For forecasting purposes, the Montana aviation market was divided into two principal groups:

- Air carrier airports
- General aviation airports

Projections of the aviation activity categories were made for all airports considered to be part of the Montana State Airport System. The forecast items are summarized in Table IV-1. Forecasts were made to 1992 in five year increments using 1971 as a base year, and 1977 as the first forecast year.

Air carrier enplaned passengers, and general aviation itinerant operations, served as the basic elements for the derivation of the other aviation activity forecast categories. The forecasts of both enplaned passengers and itinerant operations resulted from extensive analyses of the variables which were related to

TABLE IV- 1

MONTANA STATE AIRPORT SYSTEM PLAN
AVIATION ACTIVITY FORECAST CATEGORIES

1. Air carrier enplaned passengers
2. General aviation itinerant operations
3. Air carrier peak-hour passengers
4. Total air carrier annual operations
5. Air carrier peak-hour operations
6. Air carrier average turn-around time
7. Annual air cargo (freight, express, mail)
8. Percent of Aircraft Type X
9. Percent of Aircraft Type X-1
10. Percent of Aircraft Type L
11. Percent of Aircraft Type M
12. Percent of Aircraft Type S and T
13. Total general aviation annual operations *
14. General aviation peak-hour operations *
15. Percent general aviation itinerant operations *
16. Based aircraft under 12,500 lbs. *
17. Based aircraft over 12,500 lbs. *
18. Peak-hour IFR general aviation operations *
19. Critical aircraft forecast by airport
20. Peak-hour IFR air carrier operations
21. General aviation peak-hour VFR operations *
22. Total air carrier and general aviation peak-hour IFR operations
23. Operational aircraft mix *

*Items applicable to general aviation airports public air travel in Montana. The technique of multiple-regression analysis was selected as the basic forecasting methodology for both air carrier and general aviation forecasts.

This method mathematically summarizes the structural interrelationship between a dependent variable (aviation activity indicator) and independent variables (socio-economic factors). Other statistical methods were employed where appropriate to supplement the overall analyses and derivation of various demand factors.

The demand forecasting model formulated for this study incorporated the major factors influencing aviation demand. Nevertheless, it was necessary to exercise professional judgment to supplement the statistical analyses.

B. Forecast of Passenger Enplanements for the Fifteen Montana Airports with Scheduled Air Carrier Service

Independent forecasts of passenger enplanements for each of the fifteen Montana air carrier airports were developed from multiple linear, log linear regression analysis of nine to ten years of historical data. Underlying the approach to the selection of the explanatory variables for the regression were three accepted, interrelated theories or hypotheses concerning the

---

*The one exception was Gallatin Field, Bozeman, for which T.A.P. Consultants of Bozeman have completed a Master Plan Study (Ref. 23). The T.A.P. Study, which has been approved by the FAA, was used as the basis for the derivation of all forecasts for Bozeman in this report. A discussion is presented later in this chapter.

economic character of air travel demand. The first is that air travel demand, like demand for any other product, is governed predominantly by the following factors:

- Cost to the consumer
- Buying power of the consumer
- Availability, serviceability, and utility (of air travel)
- Competition (with other modes of travel)

The second hypothesis is that passenger traffic at airports in areas with similar demographic and economic characteristics which have historically demonstrated similar growth patterns will continue similar growth.

The third hypothesis is that air traffic at airports serving large recreation areas tend to follow similar growth patterns which are relatively independent of local community characteristics such as population and income.

Regression equations were derived for each of the fourteen airports (excluding Bozeman) based on the first hypothesis above, where annual enplanements were correlated with annual average air fare, per capita income and population. The results proved statistically significant for five airports, including three of the largest: Billings, Great Falls and Helena. These five equations were adopted for the forecasting model.

Regression equations for the remaining airports except Glendive and Sidney were derived according to the second hypothesis above. The larger airports of Butte and Missoula correlated significantly with Helena, which the smaller airports of Havre, Lewistown and Wolf Point indicated trends closely parralleling those in Glasgow.

The smaller adjacent airports at Glendive and Sidney proved to be exceptions. The combined total enplanements at these airports showed a consistent decline during the sixties, and it was finally concluded that this was a result of a cut-back of air-carrier service and a consumer preference toward service at the nearby airports of Williston and Wolf Point.

Figure IV-1 summarizes the general procedures which were used to generate the new air carrier forecasts. A detailed discussion of these procedures follows. A summary of forecasted enplanements is presented in Table IV-2.

1. General Assumptions

The forecast of enplanements presented in Table IV-2 should be considered unconstrained in the sense that ground facilities, aircraft capacity and airline schedules were assumed not to inhibit growth in passenger traffic to any greater extent than already historically demonstrated.

TABLE IV - 2

MONTANA STATE AIR CARRIER AIRPORT ENPLANEMENT FORECAST (1973-1992)
(Thousands of Persons)

Average Annual Percent Growth 1970 - 1992		1970	1971	1973	1974	1975	1976	1977	1982	1987	1992
7.6	Billings	197	134	177	201	227	254	284	478	741	984
13.5	Bozeman	22	12	26	31	38	58	72	188	265	359
5.7	Butte	39	32	42	46	49	53	56	76	99	131
5.6	Glasgow	1.3	1.0	1.0	1.1	1.2	1.4	1.5	2.3	3.3	4.3
5.1	Glendive	1.0	0.7	1.0	1.2	1.4	1.6	1.8	2.2	2.6	3.0
7.9	Great Falls	130	118	163	178	195	213	232	345	499	700
6.3	Havre	0.7	0.3	0.5	0.6	0.6	0.7	0.8	1.2	1.9	2.7
6.8	Helena	23	17	26	29	31	34	37	53	71	97
12.0	Kalispell	8.2	8.0	10.3	11.5	12.9	14.5	16.2	28	50	88
11.05	Lewistown	0.3	0.3	0.3	0.4	0.5	0.6	0.7	1.5	2.4	3.3
6.7	Miles City	1.0	0.7	0.7	0.8	1.0	1.1	1.3	2.1	3.0	4.2
6.8	Missoula	38	23	44	48	52	57	63	89	119	162
5.3	Sidney	0.8	0.5	0.8	0.9	1.1	1.3	1.5	1.8	2.1	2.5
12.0	West Yellowstone	3	6	7	8	9	10	11	19	33	59
4.2	Wolf Point	1.1	0.8	0.8	0.8	0.8	0.9	0.9	1.4	2.0	2.7
8.1	Total Montana	466.4						779.7	1388.5	1894.3	2602.7

Although a slightly downward trend in air fares has been observed nationally, a steady or slightly increasing trend in real air fare for the Montana airports was assumed for several reasons. In general, miles traveled per passenger is significantly greater for the U.S. as a whole, and it is increasing faster historically than it is for Montana. Since fare per passenger mile decreases with longer trips, it follows that air fares at the Montana airports will remain relatively higher than the national averages.

The Montana economy was assumed to follow the growth patterns forecasted in the SURVEY OF CURRENT BUSINESS (Reference 1, Tables 5 and 6).

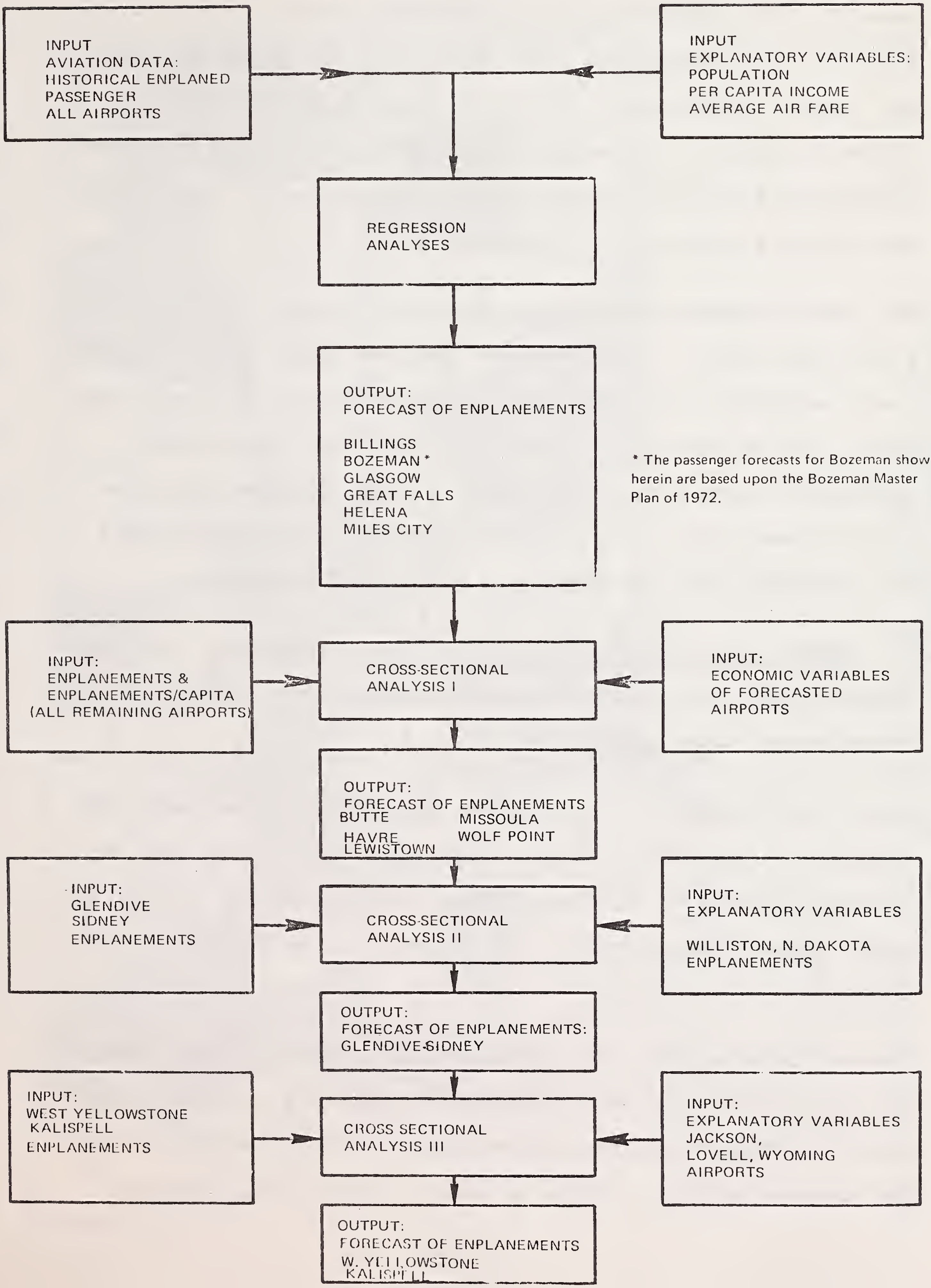
A more detailed discussion of basic assumptions regarding the independent variables follows. The airports at Kalispell and West Yellowstone were treated according to the third hypothesis above, through a correlation analysis with two nearby airports in Wyoming which serve Yellowstone National Park.

2. Description of Data Used in the Analysis

a. Statistical Base Areas. The first step necessary to the development of the forecast was to establish boundaries around each airport in order to define the economic variables to be used in the projections. These areas were called Statistical Base Areas to distinguish them from the Market Areas, which are defined for other purposes.

FIGURE IV-1

METHODOLOGICAL PROCEDURE FOR FORECAST OF ENPLANED PASSENGERS AT THE MONTANA AIR CARRIER AIRPORTS


INPUT
AVIATION DATA:
HISTORICAL ENPLANED
PASSENGER
ALL AIRPORTS
INPUT
EXPLANATORY VARIABLES:
POPULATION
PER CAPITA INCOME
AVERAGE AIR FARE
REGRESSION
ANALYSES
OUTPUT:
FORECAST OF ENPLANEMENTS
BILLINGS
BOZEMAN *
GLASGOW
GREAT FALLS
HELENA
MILES CITY
INPUT:
ENPLANEMENTS &
ENPLANEMENTS/CAPITA
(ALL REMAINING AIRPORTS)
CROSS-SECTIONAL
ANALYSIS I
INPUT:
ECONOMIC VARIABLES
OF FORECASTED
AIRPORTS
OUTPUT:
FORECAST OF ENPLANEMENTS
BUTTE
HAVRE
LEWISTOWN
MISSOULA
WOLF POINT
INPUT:
GLENDIVE
SIDNEY
ENPLANEMENTS
CROSS-SECTIONAL
ANALYSIS II
INPUT:
EXPLANATORY VARIABLES
WILLISTON, N. DAKOTA
ENPLANEMENTS
OUTPUT:
FORECAST OF ENPLANEMENTS:
GLENDIVE-SIDNEY
INPUT:
WEST YELLOWSTONE
KALISPELL
ENPLANEMENTS
CROSS SECTIONAL
ANALYSIS III
INPUT:
EXPLANATORY VARIABLES
JACKSON,
LOVELL, WYOMING
AIRPORTS
OUTPUT:
FORECAST OF ENPLANEMENTS
W. YELLOWSTONE
KALISPELL

* The passenger forecasts for Bozeman shown herein are based upon the Bozeman Master Plan of 1972.

Based on the larger population densities around the air carrier airports, the Statistical Base Areas were defined from county and county subdivision census of population data (Reference 2, Tables 9 and 10). The adopted breakdown of counties and county subdivisions and their populations is presented in Table IV-3 and a map is presented in Figure IV-2.

The twenty highest-density counties are included in the Statistical Base Areas. These counties include about 75% of the 1970 state population and approximately one-third of the total land area. All of the larger towns and cities are included in a Statistical Base Area. Therefore, it was concluded that the use of these areas as a basis for the statistical data would be sufficient for the purpose of developing a forecast.

b. Market Areas of the Montana Air Carrier Airports. As discussed above, the aviation demand forecasts were based on a "Statistical Base Area".

Since the statistical analysis is designed to investigate the important major relationships among economic factors such as income, population, air fare, etc., these areas are limited to urban centers represented by counties with the largest populations.

Hence, there are two criteria for determination of the areas for which the above socio-economic factors are selected: (1) the availability of such information: (2) the size and level of economic activity within an area. The Statistical Base

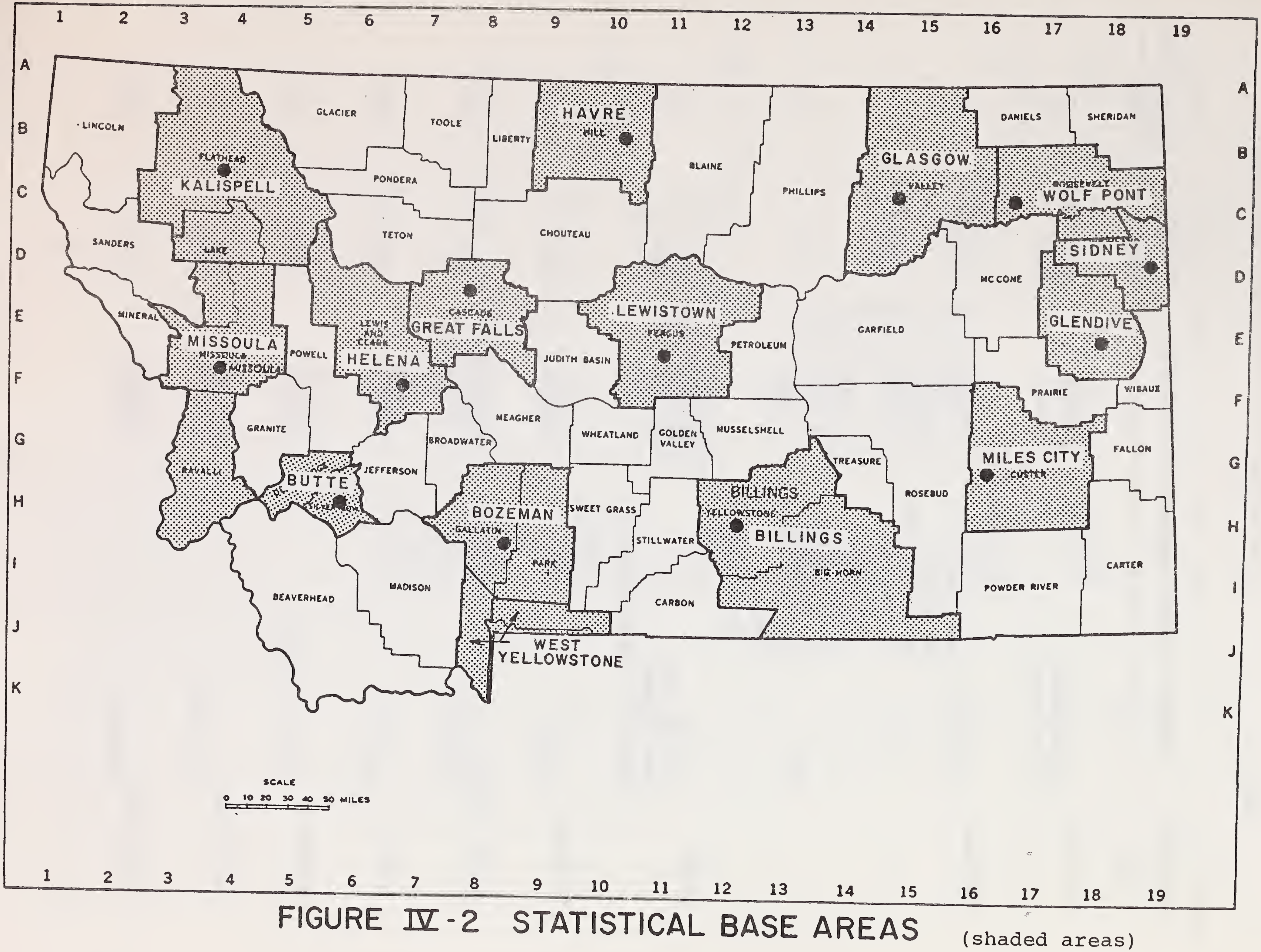

KALISPELL
HAVRE
GLASGOW
WOLF POINT
SIDNEY
GLENDIVE
MISSOULA
HELENA
GREAT FALLS
LEWISTOWN
MILES CITY
BUTTE
BOZEMAN
BILLINGS
WEST YELLOWSTONE
LINCOLN
FLATHEAD
GLACIER
TOOLE
LIBERTY
HILL
BLAINE
PHILLIPS
VALLEY
DANIELS
SHERIDAN
ROOSEVELT
SANDERS
LAKE
PONDERA
TETON
CHOUTEAU
MC CONE
RICHLAND
MINERAL
POWELL
LEWIS AND CLARK
CASCADE
JUDITH BASIN
FERGUS
PETROLEUM
GARFIELD
DAWSON
MISSOULA
PRAIRIE
WIBAUX
GRANITE
RAVALLI
BROADWATER
MEAGHER
WHEATLAND
GOLDEN VALLEY
MUSSELSHELL
TREASURE
ROSEBUD
CUSTER
FALLON
JEFFERSON
SILVER BOW
DEER LODGE
GALLATIN
PARK
SWEET GRASS
STILLWATER
YELLOWSTONE
BIG HORN
CARBON
BEAVERHEAD
MADISON
POWDER RIVER
CARTER
SCALE
0 10 20 30 40 50 MILES
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K

FIGURE IV-2 STATISTICAL BASE AREAS (shaded areas)

TABLE IV - 3 DEFINITIONS OF STATISTICAL BASE AREAS

Airport (1)	County - Subdivisions (2)	(3)	1970 Pop. (4)	%of Co. (5)	% of Total Area (6)
Billings			97,424		
	Yellowstone		87,367	100	90
	Big Horn		10,057	100	10
Bozeman			41,758		
	Gallatin	Belgrade	2,951	96.6	75
		Bozeman	18,670		
		Bozeman Rural	4,029		
		Gallatin Gateway	1,469		
		Manhattan	2,448		
		Three Forks	1,839		
	Park	Livingston	6,883	92.4	25
		Shields Valley	1,808		
		Upper Yellowstone	1,661		
Butte			58,473		
	Silver Bow		41,981	100	72
	Deer Lodge		15,652	100	27
	Ravalli	Sula-Edwards	840	5.8	1
Glasgow			11,471		
	Valley		11,471	100	100
Great Falls			81,804		
	Cascade		81,804	100	100
Havre			17,358		
	Hill		17,358	100	100
Helena			33,281		
	Lewis & Clark		33,281	100	100
Kalispell			39,460		
	Flathead		39,460	100	100
Lewistown			12,611		
	Fergus		12,611	100	100

TABLE IV - 3 (Cont'd.)

Airport	County - Subdivision		1970 Pop.	% of Co.	% of Total Area
(1)	(2)	(3)	(4)	(5)	(6)
Miles City			12,174		
	Custer		12,174	100	100
Missoula			79,315		
	Missoula		58,263	100	73
	Lake	Ronan	3,575	51.8	9
		Charlo	1,111		
		St. Ignatius	2,797		
	Ravalli	Stevensville	3,111	94.2	11
		Victor	1,095		
		Hamilton West	1,877		
		Hamilton East	3,764		
		Darby	1,223		
		Hamilton	2,499		
West Yellowstone			2,008		
	Gallatin	W. Yellowstone	1,099	3.4	55
	Park	Gardiner-Cook	845	7.5	42
	Yellowstone Nat'l Park		64	100	3
Wolf Point			10,847		
	Roosevelt		10,365	100	96
	Richland	Mona-Andes	482	4.9	4
Glendive-Sidney (combined)			20,624		
	Richland	Fairview	1,454	95.1	45
		Lanbert	984		
		Sidney	5,629		
		Savage	1,288		
	Dawson		11,269	100	55

Areas thus define the local area around an airport which contains the major portion of the population and economic activity.

On the other hand, determination of the air carrier airport market areas or service areas are made on the basis of:

1) Time required to travel and distance factors,
2) Level of air carrier service, as measured in frequency of flights and volume of passenger traffic.

All Montana counties are incorporated into one of the market areas, with the county boundary as the basic unit.

Each county is assigned to the market area of an airport by the following method. First, distance and travel time from the larger towns within county to the various airports is estimated based on the existing and planned highway system. The minimum travel time to any airport determines the market area to which a town belongs. If a town is centrally located between two airports, it is assigned the market area of the airport having a higher level of service as shown by the annual enplanements statistic. Then, based on the greater town populations within a county served by the airport, the entire county is assigned to the market area of the airport. The final market area as determined by these two criteria is shown in Figure IV-3.

This method replaces effectively a need for an expensive ground origin and destination survey for a number of reasons.

The survey results are often subject to various errors, depending upon the questionnaire forms, the day or period selected for the survey.

An average future travel pattern of air travellers on the ground from the point of departure (residence or business place) to the nearby air carrier airport cannot be meaningfully determined based on the present day survey results.

In general it is the economic consideration that determines the average behavior patterns of air travellers. Such factors as travel time and cost, and the level of services available at a given airport at any given time are important for air travellers' choice of one airport against the other as a departure point. For example an air traveller would, if a reasonable choice were available, drive west to an airport for a westbound flight and east to an airport for an eastbound flight.

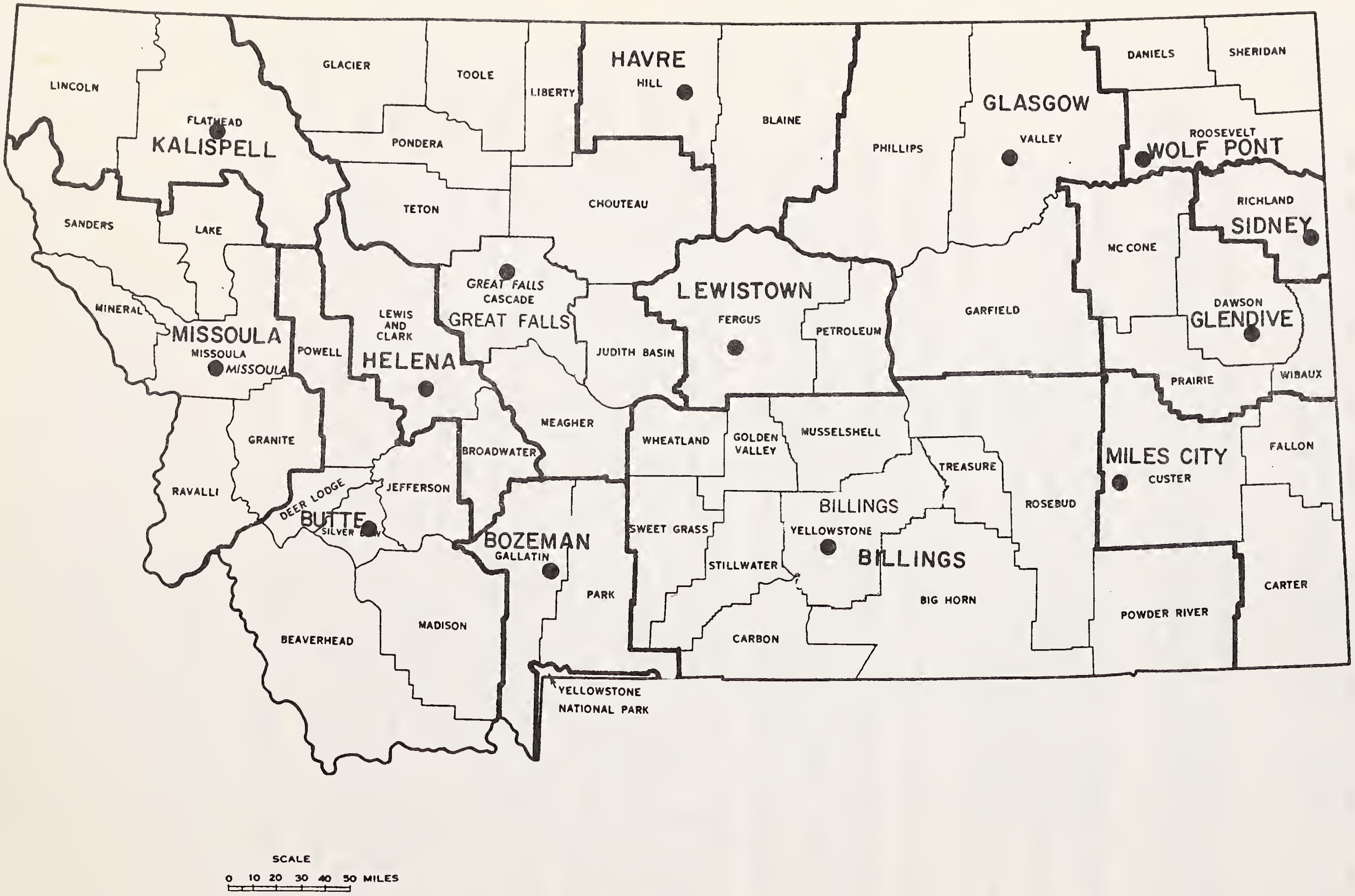

LINCOLN
FLATHEAD
KALISPELL
GLACIER
TOOLE
LIBERTY
HAVRE
HILL
BLAINE
PHILLIPS
GLASGOW
VALLEY
DANIELS
SHERIDAN
ROOSEVELT
WOLF PONT
PONDERA
SANDERS
LAKE
TETON
CHOUTEAU
RICHLAND
SIDNEY
MC CONE
MINERAL
MISSOULA
MISSOULA
MISSOULA
POWELL
LEWIS AND CLARK
HELENA
GREAT FALLS
CASCADE
GREAT FALLS
JUDITH BASIN
LEWISTOWN
FERGUS
PETROLEUM
GARFIELD
DAWSON
GLENDIVE
PRAIRIE
WIBAUX
GRANITE
RAVALLI
MEAGHER
BROADWATER
WHEATLAND
GOLDEN VALLEY
MUSSELSHELL
TREASURE
ROSEBUD
MILES CITY
CUSTER
FALLON
DEER LODGE
BUTTE
SILVER BOW
JEFFERSON
BOZEMAN
GALLATIN
SWEET GRASS
STILLWATER
BILLINGS
YELLOWSTONE
BILLINGS
BIG HORN
PARK
CARBON
POWDER RIVER
CARTER
BEAVERHEAD
MADISON
YELLOWSTONE NATIONAL PARK
SCALE
0 10 20 30 40 50 MILES

FIGURE IV-3 MARKET AREAS

It should be noted that since the county is used as a basic unit, and the urban centers are located along the highways, the interpretation of the market area must be qualified. Population residing in the cities are given heavy weights, and depending upon the direction of travel, the county line can be crossed to indicate overlapping areas. Further, most travellers are generated in urban centers, while only a small percentage of people come from remote areas. The market area can therefore be extended or narrowed depending upon the distance and direction of travel. Considering all factors, however, we believe the service areas can be defined by counties as shown in Table IV-4.

c. Enplanements. Annual scheduled enplanements (FY1962-71) for each airport were obtained from the FAA AIRPORT ACTIVITY STATISTICS (Reference 3, Part II, Table 3).

d. Population. Annual Estimates of County Population (1962-68) were obtained from the Montana Bureau of Business and Economic Research (Reference 4). Estimates for 1969 County Populations were derived by interpolation between the years 1968 and 1970. For those counties where estimates of population of county subdivisions were needed, the proportion that follows

$$\frac{\text{Population of County Subdivision in 1970}}{\text{Population of County in 1970}}$$

was applied to the county population for each year.

TABLE IV - 4

AIR CARRIER AIRPORTS AND COUNTIES SERVED

Airport	Counties Served
Billings	11 Counties Wheatland, Golden Valley, Musselshell, Rosebud, Sweet Grass, Stillwater, Yellowstone, Treasure, Carbon, Big Horn and Powder River.
Bozeman	2 Counties Gallatin and Park.
Butte	5 Counties Deer Lodge, Beaverhead, Jefferson, Madison, Silverbow and Powell.
Glasgow	2 Counties Phillips and Valley
Glendive	4 Counties McCone, Dawson, Prairie and Wibaux.
Great Falls	9 Counties Glacier, Toole, Liberty, Pondera, Teton, Chouteau, Cascade, Juddith Basin and Meagher.
Havre	2 Counties Hill and Blaine.
Helena	2 Counties Lewis and Clark, and Broadwater.

Table IV - 4 (continued)

Airport	Counties Served
Kalispell	2 Counties Lincoln and Flathead.
Lewistown	2 Counties Fergus and Petroleum.
Miles City	4 Counties Garfield, Custer, Fallon and Carter.
Missoula	6 Counties Sanders, Lake, Mineral, Missoula, Ravalli, and Granite.
Sidney	1 County Richland
West Yellowstone	1 County Gallatin
Wolf Point	3 Counties Daniels, Sheridan and Roosevelt.

The population of each Statistical Base Area for each year (1962-70) was then taken as the sum of the county and county subdivision populations within each base area. County population estimates for 1971 were not available, so estimates were developed according to the forecasting algorithm described in Section B4 of this chapter.

e. Per Capita Income. Residence-adjusted annual income per capita (1962,1965-70) by county was obtained from a report published by the Montana Department of Planning and Economic Development (Reference 5). These values were deflated to 1967 constant dollars according to the consumer price index (Reference 6, page 126). Estimates for the years 1963 and 1964 were then obtained by a linear interpolation between the years 1962 and 1965. No county data was available for 1971; so, the derived state real growth rate of 0.96% (Reference 6, page 123) was applied uniformly to each county.

The per capita income of the Statistical Base Areas for each year was then computed as the population-weighted average of the counties and county subdivisions within each base area. These forecasts for the five largest Statistical Base Areas are found in Table IV-5.

f. Fares. Average air fares (in cents per passenger-mile) were computed for each Montana airport for each calendar year from 1962 to 1972 according to the procedure outlined in Figure IV- 4.

TABLE IV - 5

FORECAST OF PER CAPITA INCOME IN THE FIVE LARGEST STATISTICAL BASE AREAS.
(In 1967 Dollars)

Statistical Base Area Airport	1977	1982	1987	1992
Billings	3,704	4,386	5,060	5,815
Glasgow	3,987	4,516	5,085	5,727
Great Falls	3,930	4,534	5,231	6,035
Helena	4,165	4,792	5,449	6,182
Miles City	4,101	4,737	5,327	5,997

FIGURE IV-4
PROCEDURE FOR COMPUTING MONTANA AIR FARES

Step 1 Obtain both coach and first class air fares between city-pairs by year for 1963 through 1972 for 14 intra-state city-pairs and 15 inter-state city-pairs ($ per trip)

(a) $Fc_jp_i^Y$ = First class fare between city-pairs c_j and p_i in year Y (j subscripts Montana air terminals, i all O & 1 points

and

(b) $Yc_jp_i^Y$ = Coach fare between city-pairs c_j and p_i in year Y (same subscripts as above)

Step 2 Obtain air mileage between city pairs

(c) Mc_jp_i = Air miles between city-pairs c_j and p_i

Step 3 Obtain ratio of coach to first class passenger miles per city pair for each year

(d) R^Y = ratio $\frac{\text{Coach Passenger Miles}}{\text{Total Passenger Miles}}$ in Year Y

Step 4 Calculate cost per passenger mile between city-pairs c_j and p_i in year Y for all 29 city pairs for each year 1963 through 1972 using the following formula:

(e) $$Cc_jp_i^Y = \frac{Fc_jp_i \ (1-R^Y) + Yc_jp_i \ R^V}{Mc_jp_i}$$

Step 5 Obtain the annual total passenger miles flown between city-pair c_jp_i for each year (1963-1972) and let

PMc_jp_i = Passenger miles between city-pairs c_j and p_i in year Y

Step 6 Calculate the average weighted air fare cost per passenger mile for airport destination j in year Y in current dollars C using the following relationship:

$$j \text{ Fare } c^Y = \frac{{}_i \ Cc_jp_i^Y \ PMc_jp_i^Y}{{}_i \ PMc_jp_i^Y}$$

where j equals Montana air carrier airports

Step 7 Obtain airline transportation price deflator (published by the National Planning Association, Reference 8) by year with base year 1958. Let

$D^Y = \frac{\$ \ Y}{\$1958}$ Ratio of current dollars to 1958 $

Step 8 Finally, calculate the average weighted air fare per passenger mile for airport destination j in Year Y in constant cents per mile K as follows:

$$j \text{ Fare}_K^Y = \frac{\text{Fare}_C^Y}{D_Y}$$

The data for distances in air miles and passenger miles were taken from CAB O&D surveys (Reference 9, Table 10). Passenger miles were given as inbound plus outbound, so it was necessary to assume that outbound passenger miles traveled were equal to the inbound.

3. Derivation and Performance of Regression Equations

As referred to earlier, the first set of regression equations was derived by relating annual enplanements at each airport to population, average air fare and per capita income for the 9 year period from 1963 to 1971. Numerous combinations of these variables and their logorithms were tested and it was determined that the general equation which gave the best statistical performance was:

Enplanements/Population = Linear function of average air fare, population and per capita income.

Table IV-6 shows the coefficients of the independent variables derived for each airport. The number in parentheses to the right of the coefficient is the T-statistic derived for that coefficient. An absolute value greater than 1.895 indicates that the coefficient is significantly different from zero with 90% confidence.

a. Billings, Great Falls, Helena, Glasgow and Miles City. The results proved significant for five of the airports (marked

TABLE IV-6
FIRST SET OF REGRESSION EQUATIONS[1]/*

Airport	Coefficient of Per Capita Income	Coefficient of Ave. Air Fare	Intercept	Mult. Correlation Coef.	Standard Error
Billings	255 (5.348)	-55 (2.082)	-295	.917	21*
Butte	31.9 (1.241)	-6.5 (1.390)	6.4	.615	13.0
Glasgow	14.1 (3.842)	-2.5 (2.453)	-5.4	.843	3.4*
Glendive-*Sidney[2]/	-1.1 (2.364)	.4 (.202)	368	.773	3.8
Great Falls	215 (6.115)	-65 (1.238)	-113	.935	15*
Havre	-3.7 (.498)	0.1 (.090)	15.3	.256	2.5
Helena	59.3 (4.252)	-8.9 (1.278)	-75.9	.888	9.2*
Lewistown	8.5 (.793)	-0.9 (1.128)	-6.4	.422	5.1
Miles City	10.3 (4.880)	-2.7 (4.497)	1.3	.900	1.2*
Missoula	92.3 (.171)	-1.7 (1.60)	-187.6	.574	12.0
Wolf Point	9.4 (2.342)	-0.3 (.437)	-11.0	.719	2.8
Kalispell-*W. Yellowstone[3]/					

* Equations adopted for forecasting model

*[1]/Interpretation of table by example for Billings. The top line says:
Billings Enplanements/Capita (in enplanements per 100 population) =
255 Per Capita Income (in $000) -55 Air Fare (in ¢/mile) - 295
Critical value of T-statistic is 1.895 at significance level .90. Thus values of 5.348 and 2.082 permit the rejection of the hypothesis that coefficients of per capita income and average air fare respectively are zero with 90 percent confidence.

*[2]/Due to the proximity of the small airports at Glendive and Sidney it was decided to combine the data for each and treat the aggregation as data for one airport.

*[3]/It was immediately apparent from observation of the data for Kalispell and West Yellowstone that the economic assumptions of this regression analysis do not apply for these airports. A discussion of the analysis for these airports is presented in this Section.

with asterisks in Table IV-6) including the larger airports of Billings, Great Falls and Helena; and the smaller airports of Glasgow and Miles City. The equations for these airports were adopted in the forecasting model and provided the basis for the development of forecasts for the other Montana airports.

b. Butte, Havre, Lewistown, Missoula and Wolf Point. A cross sectional correlation analysis was undertaken for several airport pairs. The variables "enplanements" and "enplanements per capita" for all market area pairs with similar population densities and income characteristics were correlated. This procedure resulted in the following significant linear equations:*

$$\text{(1)}\quad \text{Butte (Enplanements)} = \underset{(10.6)}{1.25}\,[\text{Helena(Enplanements)}] + 10.14 \quad (.970,+2.0)$$

$$\text{(2)}\quad \text{Havre}\left(\frac{\text{Enplanements}}{\text{Capita}}\right) = \underset{(4.06)}{.336}\left[\text{Glasgow}\left(\frac{\text{Enplanements}}{\text{Capita}}\right)\right] + 1.302 \quad (.838,+1.2)$$

$$\text{(3)}\quad \text{Lewistown (Enplanements)} = \underset{(4.04)}{.912}\,[\text{Glasgow (Enplanements)}] - .624 \quad (.837,+0.3)$$

$$\text{(4)}\quad \text{Missoula}\left(\frac{\text{Enplanements}}{\text{Capita}}\right) = \underset{(8.6)}{.702}\left[\text{Helena}\left(\frac{\text{Enplanements}}{\text{Capita}}\right)\right] + .836 \quad (.956,+3.9)$$

$$\text{(5)}\quad \text{Wolf Point}\left(\frac{\text{Enplanements}}{\text{Capita}}\right) = \underset{(3.70)}{.505}\left[\text{Glasgow}\left(\frac{\text{Enplanements}}{\text{Capita}}\right)\right] + 2.214 \quad (.814,+2.0)$$

It is significant to note that the larger airports of Butte and Missoula correlated highly with Helena, and the smaller airports

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*The number in parentheses to the right of each equation represent the correlation coefficient and standard error respectively. The number in parentheses below the coefficient is the T-statistic associated with that coefficient. The critical value of T is 2.306 at .95 significance level with 8 degrees of freedom.

of Havre, Lewistown and Wolf Point correlated highly with Glasgow. These two groups of airports, located in areas on opposite sides of the Continental Divide, have similar land-use and agricultural employment characteristics as well as similar population density and income characteristics. These similarities served to bolster the theory underlying this segment of the forecasting analysis. Hence, each of these equations was adopted for the forecasting model.

c. Glendive and Sidney. This analysis, however, did not give good results for the airports at Glendive and Sidney, which are two small airports located approximately 40 miles apart near the Montana-North Dakota state line. Total enplanements for both airports have decreased consistently since 1965 and air service at these airports dissipated since the late 1960's.

An analysis of historical data of the airport in Williston, North Dakota, seemed to indicate that since 1965 a considerable amount of Glendive/Sidney traffic had been diverted to Williston, as shown in Table IV-7. This diversion was coincident with a reduction in air carrier service to these two communities. A minimal growth is expected at Sidney, up to the level experienced in 1965. A similar growth rate is expected at Glendive.

d. Kalispell and West Yellowstone. The analysis for the resort areas of Kalispell (serving Glacier Park and Flathead Forest) and

TABLE IV-7

SIDNEY-GLENDIVE ENPLANEMENTS AS A PROPORTION OF THE TOTAL LOCAL AREA ENPLANEMENTS

Year	Williston, No. Dakota	Sidney-Glendive	Total	Sidney-Glendive as % of Total
1963	1.9	2.6	4.5	58
1964	3.0	4.0	7.0	57
1965	3.3	4.1	7.4	55
1966	4.0	3.9	7.9	49
1967	4.9	2.5	7.4	34
1968	6.4	1.6	8.0	20
1969	7.5	1.0	8.5	12
1970	5.2	1.0	6.2	16

West Yellowstone (serving Yellowstone Park) was performed according to a different cross-sectional approach. Based on the theory that passenger traffic at small air carrier airports serving similar popular resort areas will follow similar growth patterns, a set of forecasting equations were derived (from 1963-1970 data) correlating enplanements at Kalispell with enplanements at the airports of Jackson, Wyoming and Lovell, Wyoming, both of which serve Yellowstone National Park.

The equations which performed the most significantly are indicated as follows:

$$\begin{array}{llll} \text{Kalispell (Enplanements)} = & .40 & [\text{Jackson + Lovell} & \text{(Enplanements)}] - 1.5 \\ & (11.6) & [& (\quad .979, +.5\ )] \end{array}$$

$$\begin{array}{lll} \text{Kalispell (Enplanements)} = & .42 & [\text{Jackson(Enplanements)}] - .36\ (.990, +\ .35) \\ & (17.5) & \end{array}$$

These equations indicate very high correlations among airports serving tourist areas in the Northwest Mountains.

An overall average growth rate of 12% per year was derived from an analysis of the combined enplanements for all three airports (1963-1970). This annual growth rate of 12% was adopted for the forecasting model for both the airports of Kalispell and West Yellowstone.

e. Bozeman. In view of the "Big Sky" Recreational Project Plan and its potential impact on air travel in the region, it was considered that demand forecasting for Bozeman through regression analysis would not be sufficient.

Instead, a study was undertaken of the Master Plan for the Bozeman Airport prepared by T.A.P. Consultants (Reference 22). The T.A.P. report presented a comprehensive forecast of air travel to Bozeman due to the Big Sky Project. The Airport Layout Plan has been approved by the FAA and adopted by the Airport Authority at Bozeman. Since the updated construction schedule for the "Big Sky Project" is about one year behind the original schedule and since the actual 1972 passenger traffic at Bozeman proved lower than T.A.P.'s projection, it was concluded that T.A.P.'s forecasts may be slightly high. It was therefore further concluded that T.A.P's projection for 1980 may not be realized perhaps until 1982 or 1983. In general, T.A.P.'s forecast was adopted for this study with a two year lag.

4. Forecasts of Independent Variables

a. County Population. Estimates of the expected Montana State Population for 1980 and 1990 were derived from projections made by the Census Bureau (Reference 10). The average of their four separate projections (based on different migration and fertility rates) was accepted as the state population. Thus the 1980 state population was estimated as 761,000 and the 1990 as 860,000.

To establish population forecasts by year by county, the following simplified method was adopted using the Census Bureau County population estimates for 1960 and 1970, and the Montana Data Book (Reference 11, pg. 4:12) for 1950.

For 1970-1980:

- If County Population in 1970 is less than County Population (1960) take annual County Population growth as zero.
- If Co. Pop. (1970) is greater than Co. Pop. (1960) take Co. Pop. growth as 1.5%[1] per year.

For 1981-1992:

- If Co. Pop. (1970) is less than Co. Pop. (1960), which is also less than Co. Pop. (1950) take annual Co. Pop. growth as zero.
- For all other counties take a 1981-1992 annual growth rate of 1.6%[2].

The important feature of this simplified forecast is that counties showing declining population over the past ten years are assumed not to show growth over the next ten years. It was decided that this type of assumption was sufficient for the inherent needs of the forecast. As a check, a comparison of the 1990 results using this method was made with the 1990 County

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*[1] This growth rate was calculated as that rate needed to show a state population increase from 694,000 in 1970 to 761,000 in 1980.

*[2] Calculated as the rate needed to show a State population increase from 761,000 in 1980 to 860,000 in 1990.

Population Forecasts published by Menasco-McGuinn Associates (Reference 12). The results of the comparison proved favorable, so these forecasts were adopted. Accordingly, county populations were then aggregated into Statistical Base Area Populations.

b. Average Air Fare. A straight-line time trend was developed based on historical values of average air fare for each of the five Montana airports which required forecasts of average air fare. The results are shown in Table IV-8.

The conclusion reached from Table IV-8 was that such time trend analysis of air fare is misleading. The trend increases or decreases demonstrated historically (Col. 3) were significantly smaller than the average deviation between the actual air fare and the expected trend-value (Col. 2) for each year. The implication is that although average increases or decreases per year can be computed over time, they are subject to radical changes in the short-run.

The most significant determinants of average air fare per passenger mile are average length of trip and airline aircraft seat capacity. Although national trends indicate a long-term growth of these parameters, this was not the case in Montana. Thus, national trends of steady or decreasing per mile air fares could not be expected to apply uniformly to Montana airports. Moreover,

TABLE IV-8

HISTORICAL TRENDS IN AIR FARE AT FIVE MONTANTA AIRPORTS (1963 - 1971)

Airport	Historical Ave. Air Fare (¢/Mi) (1)	Standard Error of Estimate (2)	Av. Increase or Decrease per Yr. Derived (¢/Mi.) (3)
Billings	6.32	.30	+.02
Great Falls	6.27	.47	-.02
Helena	6.90	.49	-.03
Glasgow	9.54	1.02	+.48
Miles City	8.69	.61	+.34

increased environmental and security restrictions presently being imposed on airports, as well as increased aircraft maintenance and operating costs, will tend to increase user cost. Although a numerical estimate of the historical effects of all these elements was considered beyond the scope of this study, certain broad assumptions regarding air fares may be made as a result of a review of the data. First, it was necessary to separate the larger airports of Billings, Great Falls and Helena, from the smaller ones of Glasgow and Miles City. The percentage of local passenger traffic at the smaller airports is significantly greater than at the larger airports. It was assumed that the proportions would not change significantly and that aircraft seat capacity would show stable growth.

It was assumed therefore that these factors would not contribute to an increase in air fares which were already relatively very high. Hence, a constant air fare equal to the 1970 value was adopted as a forecast for the smaller airports.

For the three larger airports, it was concluded in view of the above factors that an increasing trend in air fares would result. An increase in average fare of 0.1 cents (which is approximately one percent) per passenger mile per year was assumed for each airport.

c. Per Capita Income. Forecasts of per capita income for the five airport Statistical Base Areas were derived directly from the SURVEY OF CURRENT BUSINESS (Reference 1, Table 5). For each Base Area and for the years 1950, 1960 and 1970, the ratios

$$\frac{\text{Base Area Per Capita Income}}{\text{Montana Per Capita Income}}$$

were computed. Then, by extrapolation, under the assumption that there will be a gradual tendency toward uniformity in per capita income distribution among the various Statistical Base Areas - these ratios were projected for 1980 and 1990. Multiplying these ratios by the forecasted state figures from the SURVEY OF CURRENT BUSINESS gave an estimate of local per capita income. The results of these calculations are shown in Tables IV-9 and IV-10.

Forecasts for intermediate years were derived by interpolation according to a constant growth rate. The values for 1991 and 1992 were derived from an application of 1980 - 1990 growth rate for each Statistical Base Area.

Forecasting equations and related historical and projected data of dependent and independent variables are shown by airport in Appendix II, No. 1.

TABLE IV-9

FORECAST OF PER CAPITA INCOME
(In 1967 Constant Dollars)

Airport	Actual			Forecast	
	1950	1960	1970	1980	1990
Billings	.89	1.06	1.01	1.01	1.01
Great Falls	1.03	1.06	1.10	1.05	1.05
Helena	.98	1.15	1.14	1.11	1.08
Bozeman	.84	.88	.84	.85	.85
Glasgow	.78	.77	1.13	1.05	1.00
Miles City	.87	1.02	1.17	1.10	1.05

TABLE IV-10

BASE AREA/STATE PER CAPITA INCOME RATIOS

Airport	FORECAST	
	1980	1990
Billings	4,143	5,492
Great Falls	4,307	5,710
Helena	4,553	5,873
Bozeman	3,487	4,568
Glasgow	4,307	5,438
Miles City	4,512	5,710
STATE	4,102	5,438

C. Forecast of General Aviation Itinerant Operations

1. Introduction and Summary

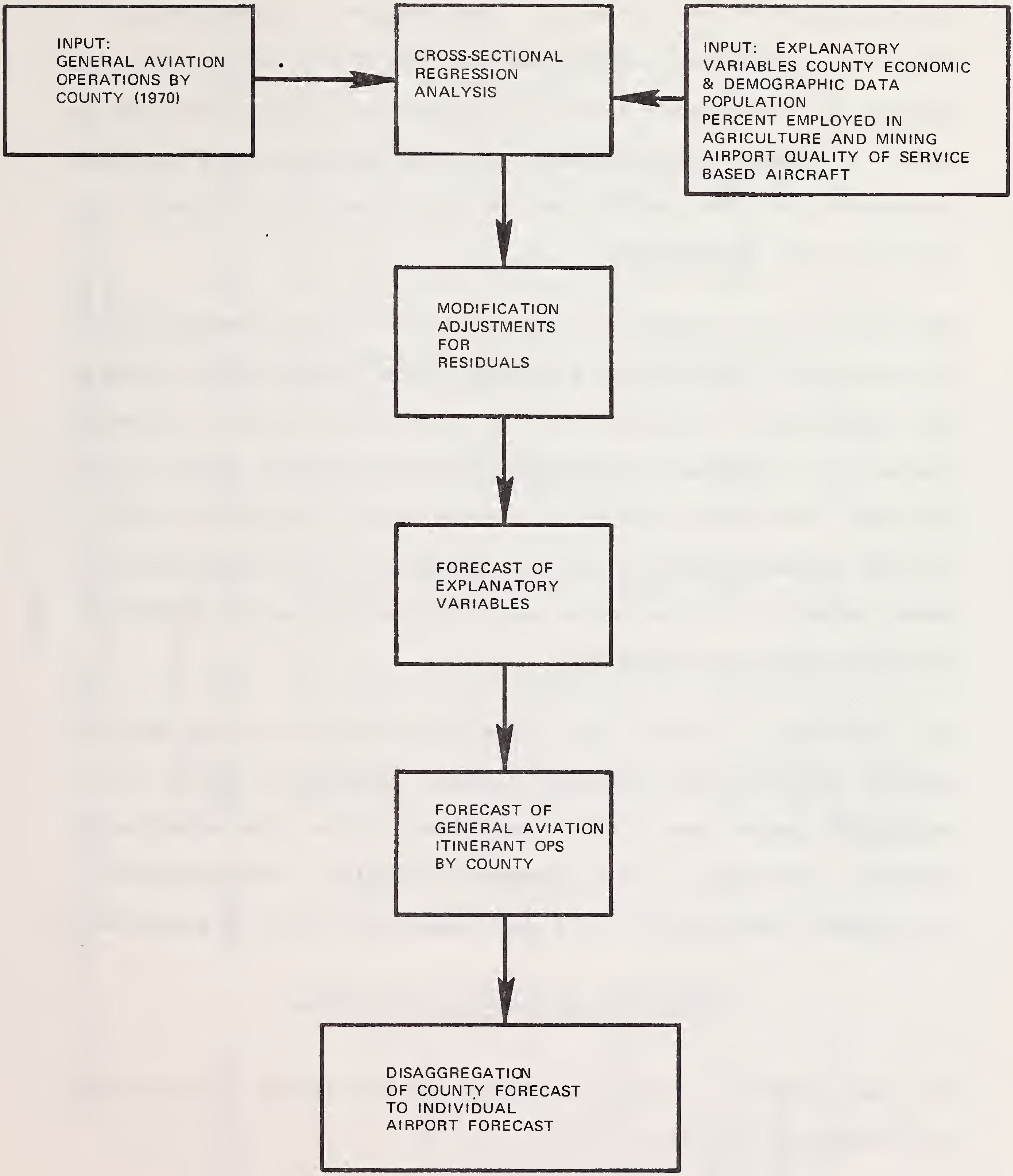
Forecasts of general aviation itinerant operations by county were developed from a multiple log-linear cross-sectional regression analysis of 1970 county data. In this approach, shown in Figure IV-5, general aviation itinerant operation statistics were aggregated by county and correlated with various county demographic and economic characteristics.

For forty-six of the Montana airports for which reliable 1970 data were not available, forecasts were made by other methods. The county cross-sectional analyses were therefore carried out on seventy-five airports in fifty-one counties, including all of the air carrier airports. Many airport and county parameters were tested in some two hundred regressions. The final equation adopted for the forecasting model is written as follows:

$$
\begin{aligned}
\log_{10} (\text{County Itinerant Operations}) = 3.11087+ \\
&\underset{(2.25)}{+\ .00594}\quad (\text{County Population}) \\
&\underset{(3.44)}{-\ .00953}\quad (\text{Percent Employed in Agriculture \& Mining}) \\
&\underset{(2.01)}{+\ .00349}\quad (\text{Facility Index}) \\
&\underset{(5.19)}{+\ .47174}\quad (\log_{10} (\text{Based Aircraft used as Taxis or by Business}))
\end{aligned}
$$

FIGURE IV-5

METHODOLOGICAL PROCEDURE FOR FORECAST
OF GENERAL AVIATION ITINERANT OPERATIONS
AT THE MONTANA AIRPORTS


INPUT:
GENERAL AVIATION
OPERATIONS BY
COUNTY (1970)
CROSS-SECTIONAL
REGRESSION
ANALYSIS
INPUT: EXPLANATORY
VARIABLES COUNTY ECONOMIC
& DEMOGRAPHIC DATA
POPULATION
PERCENT EMPLOYED IN
AGRICULTURE AND MINING
AIRPORT QUALITY OF SERVICE
BASED AIRCRAFT
MODIFICATION
ADJUSTMENTS
FOR
RESIDUALS
FORECAST OF
EXPLANATORY
VARIABLES
FORECAST OF
GENERAL AVIATION
ITINERANT OPS
BY COUNTY
DISAGGREGATION
OF COUNTY FORECAST
TO INDIVIDUAL
AIRPORT FORECAST

A detailed description of these variables is presented in a later section of this chapter. The numbers in parenthesis below the regression coefficient are the T-statistics used for testing the hypothesis that the respective coefficients may be zero. A T-value greater than 2.00 with 46 degrees of freedom indicates that the coefficient is significantly different from zero with 95% confidence.

The multiple correlation coefficient of .921 was derived from this equation, indicating a strong linear relationship between the independent variables and the logarithm of county itinerant operations. However, a relatively large standard error of .212 dictated the need to modify the forecasting technique by adjusting values according to the residuals (the difference between actual 1970 operations and 1970 operations as estimated by the regression equation).

The forecasts by county were derived according to this modification, that is, the quantity (actual operations (1970) minus estimated operations (1970)) was added to the forecasted estimate for each year of the forecasting period. The breakdown by airport was obtained by simply applying the 1970 proportions:

$$\frac{\text{Operations at Airport in County}}{\text{Total County Operations}}$$

for each airport to the whole forecasting period. The results are presented in Table IV-11.

TABLE IV -11

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92) BY COUNTY AND AIRPORT (Itin.Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
BEAVERHEAD	-	3.3	3.7	3.9	4.1	4.3	4.5	5.4	6.3	7.4
Dillon	.91	3.0	3.4	3.5	3.7	3.9	4.1	4.9	5.7	6.7
Dell	.09	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.7
BIG HORN - Hardin	-	2.7	2.8	2.8	2.9	2.9	2.9	3.1	3.3	3.5
BLAINE	-	4.3	4.7	4.8	4.9	5.0	5.1	5.6	6.1	6.6
Chinook	.51	2.2	2.4	2.4	2.5	2.6	2.6	2.9	3.1	3.4
Harlem	.35	1.5	1.6	1.7	1.7	1.7	1.8	1.9	2.1	2.3
Turner	.14	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9
BROADWATER - Townsend	-	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.3	1.5
CARBON	-	2.4	2.5	2.6	2.6	2.7	2.7	3.0	3.3	3.6
Red Lodge	.83	2.0	2.1	2.2	2.2	2.2	2.2	2.5	2.7	3.0
Bridger	.17	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6
CARTER - Ekalaka	-	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8
CASCADE - Great Falls	-	33.8	39.3	41.0	42.7	44.7	46.8	59.5	74.3	93.6

TABLE IV-11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92) BY COUNTY AND AIRPORT (Itin.Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
CHOUTEAU	-	3.7	3.9	4.0	4.0	4.1	4.2	4.6	5.0	5.4
Big Sandy	.14	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.8
Fort Benton	.51	1.9	2.0	2.0	2.0	2.1	2.1	2.3	2.5	2.7
Geraldine	.35	1.2	1.4	1.4	1.4	1.4	1.5	1.7	1.8	1.9
CUSTER - Miles City	-	7.4	7.8	8.0	8.2	8.4	8.6	9.6	10.8	12.2
DANIELS - Scobey	-	1.6	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.5
DAWSON - Glendive	-	5.0	5.1	5.2	5.3	5.4	5.5	6.0	6.5	7.0
DEER LODGE - Anaconda	-	1.5	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.2
FALLON - Baker	-	1.4	1.5	1.6	1.7	1.8	1.9	2.3	2.7	3.2
FERGUS	-	7.3	7.5	7.7	7.9	8.1	8.3	9.4	10.6	11.8
Lewistown	.95	6.9	7.1	7.3	7.5	7.7	7.9	8.9	10.1	11.2
Winifred	.05	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6
FLATHEAD	-	10.9	13.2	14.0	14.8	15.6	16.5	21.3	26.4	32.8
Kalispell G.P.I.	.64	7.0	8.4	9.0	9.5	10.0	10.5	13.6	16.9	21.0
Kalispell Municipal	.36	3.9	4.8	5.0	5.3	5.6	6.0	6.7	9.5	11.8

TABLE IV - 11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973 - 92) BY COUNTY AND AIRPORT (Itin. Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
GALLATIN	-	16.8	18.0	18.4	18.9	19.4	19.8	22.3	25.2	28.3
Bozeman *										
Three Forks	.05	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4
West Yellowstone	.24	4.0	4.2	4.4	4.5	4.6	4.7	5.3	6.0	6.8
GARFIELD - Jordan	-	0.9	1.0	1.0	1.1	1.1	1.2	1.5	1.9	2.3
GLACIER - Cut Bank	-	4.0	4.3	4.4	4.5	4.7	4.9	5.6	6.3	7.0
GRANITE - Philipsburg	-	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.7
HILL - Havre	-	7.4	7.8	8.0	8.2	8.4	8.6	9.6	10.8	12.1
JUDITH BASIN - Stanford	-	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.9
LAKE	-	4.4	4.8	4.9	5.0	5.2	5.3	6.1	6.9	7.8
Polson	.89	3.9	4.3	4.4	4.5	4.6	4.7	5.4	6.1	6.9
Ronan	.11	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.9
LEWIS & CLARK	-	14.8	16.1	16.5	17.1	17.6	18.1	20.9	24.1	28.1
Helena	.95	14.0	15.3	15.7	16.2	16.7	17.2	19.9	22.9	26.7
Lincoln	.05	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.4
LIBERTY - Chester	-	1.1	1.2	1.2	1.3	1.3	1.4	1.6	1.9	2.2

*See Appendix I, No. 3

TABLE IV - 11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92)
BY COUNTY AND AIRPORT (Itin. Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
LINCOLN	-	4.7	5.0	5.1	5.2	5.3	5.4	6.0	6.6	7.3
Eureka	.28	1.3	1.4	1.4	1.4	1.5	1.5	1.7	1.8	2.0
Libby	.72	3.4	3.6	3.7	3.8	3.8	3.9	4.3	4.8	5.3
McCONE - Circle	-	0.4	0.5	0.5	0.6	0.6	0.6	0.9	1.2	1.6
MADISON	-	3.0	3.2	3.2	3.3	3.3	3.4	3.7	4.0	4.4
Ennis	.67	2.0	2.1	2.1	2.2	2.2	2.2	2.4	2.6	2.9
Twin Bridges	.33	1.0	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.5
MEAGHER - White Sulphur Springs	-	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.5	1.7
MINERAL - Superior	-	0.5	0.6	0.6	0.6	0.6	0.7	0.8	1.0	1.2
MISSOULA - Missoula	-	41.2	45.4	46.9	48.5	50.1	51.7	60.1	70.0	80.4
MUSSELSHELL - Roundup	-	1.5	1.6	1.7	1.7	1.8	1.8	2.1	2.4	2.8
PARK	-	5.1	5.2	5.3	5.3	5.3	5.4	5.6	5.9	5.8
Livingston	.94	4.8	4.9	5.0	5.0	5.0	5.1	5.3	5.5	5.8
PHILLIPS - Malta	-	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.6	2.0

TABLE IV-11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92)
BY COUNTY AND AIRPORT (Itin.Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
PONDERA	-	3.0	3.2	3.3	3.4	3.5	3.6	4.1	4.6	5.1
Valier	.33	1.0	1.1	1.1	1.1	1.1	1.1	1.3	1.5	1.7
Conrad	.67	2.0	2.1	2.2	2.3	2.4	2.5	2.8	3.1	3.4
POWDER RIVER - Broadus	-	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.4	1.5
POWELL - Deer Lodge	-	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7
PRAIRIE - Terry	-	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.7
RAVALLI - Hamilton	-	3.0	3.4	3.5	3.7	3.9	4.1	4.9	5.7	6.6
RICHLAND - Sidney	-	2.3	2.6	2.7	2.9	3.0	3.1	3.9	4.8	5.9
ROOSEVELT	-	5.5	5.9	6.0	6.1	6.2	6.4	7.1	8.0	9.0
Culbertson	.55	3.0	3.2	3.3	3.4	3.4	3.5	3.9	4.4	5.0
Poplar	.18	1.0	1.1	1.1	1.1	1.1	1.1	1.3	1.4	1.5
Wolf Point	.27	1.5	1.6	1.6	1.6	1.7	1.8	1.9	2.2	2.5
ROSEBUD	-	2.9	3.1	3.2	3.2	3.3	3.4	3.9	4.4	4.9
Forsyth	.62	1.8	1.9	2.0	2.0	2.1	2.1	2.4	2.7	3.0
Ashland	.38	1.1	1.2	1.2	1.2	1.2	1.3	1.5	1.7	1.9

TABLE IV- 11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92)
BY COUNTY AND AIRPORT (Itin.Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
SANDERS	-	1.8	2.0	2.0	2.1	2.1	2.2	2.6	3.1	3.7
Hot Springs	.33	0.6	0.6	0.6	0.7	0.7	0.7	0.8	1.0	1.2
Plains	.39	0.7	0.9	0.9	0.9	0.9	1.0	1.2	1.4	1.6
Thompson Falls	.28	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.9
SHERIDAN - Plentywood	-	3.0	3.2	3.2	3.3	3.3	3.4	3.7	4.0	4.4
SILVER BOW - Butte	-	8.5	9.0	9.1	9.3	9.5	9.7	10.5	11.5	12.5
STILLWATER - Columbus	-	2.0	2.2	2.2	2.3	2.3	2.4	2.7	3.0	3.4
SWEET GRASS - Big Timber	-	1.8	1.9	2.0	2.0	2.0	2.1	2.3	2.5	2.8
TETON	-	1.2	1.3	1.3	1.4	1.4	1.4	1.6	1.8	2.1
Choteau	.83	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.5	1.7
Dutton	.17	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4
TOOLE - Shelby	-	3.0	3.2	3.2	3.3	3.4	3.4	3.7	4.1	4.5

TABLE IV-11 (Continued)

MONTANA STATE FORECAST OF GENERAL AVIATION ITINERANT OPERATIONS (1973-92) BY COUNTY AND AIRPORT (Itin.Opns. in Thousands)

		Actual	Forecast							
County - Airport(s)	Factor	1970	1973	1974	1975	1976	1977	1982	1987	1992
VALLEY	-	7.5	7.9	8.0	8.1	8.2	8.3	9.0	9.8	10.7
Glasgow	.95	7.1	7.5	7.6	7.7	7.8	7.9	8.6	9.3	10.2
Opheim	.05	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
WHEATLAND - Harlowton	-	0.5	0.6	0.6	0.6	0.6	0.7	0.8	1.0	1.2
YELLOWSTONE	-	47.7	55.8	58.9	62.0	65.3	68.9	89.6	116.7	151.1
Billings	.96	45.7	53.6	56.5	59.5	62.7	66.1	86.0	112.0	145.1
Laurel	.04	2.0	2.2	2.4	2.5	2.6	2.8	2.8	3.6	4.7

For those airports which were excluded from the regression analysis, independent forecasts were carried out by comparative analysis with airports whose forecasts were already made. Because of insufficient data, a certain judgment was exercised to derive a reasonable set of forecasts.

Various methods of growth rate and percent share analysis were conducted with regard to the historical trend and in relation to the neighboring airports.

2. Description of Data Used for the Regression

a. Itinerant Operations. Itinerant Operations for 1970 for FAA control tower airports were obtained from the FAA AIR TRAFFIC ACTIVITY, Calendar Year 1970 (Reference 13, Table 4). Representative estimates of 1970 Itinerant Operations for the other airports in the analysis were taken from 1960-1970 FAA 5010-1 Forms (Reference 14). For the purposes of this analysis, it was necessary to adjust certain 1970 statistics to account for unusually low volumes of general aviation traffic reported during the slump period 1970-1971. These statistics were then aggregated by county.

b. Population. County populations for 1970 were obtained directly from the 1970 Census (Reference 2, Table 9).

c. Agricultural and Mining Employment. Percent employed in Agriculture and Mining in 1970, by county, was obtained from a report published by the Montana Department of Planning and Economic Development (Reference 15).

d. Facility Index. A dummy index (range 0 to 100) was defined to categorize the Montana airports according to similar facility characteristics. The following airport characteristics were considered to contribute to this measure:

(1) Scheduled Air Carrier Service
(2) Corrected length of longest runway
(3) Runway surface type
(4) Runway lighting
(5) Airport management in attendance

This data was obtained for each airport in the analysis from the Montana Airport-Directory (Reference 16) and FAA Form 5010-1 (Reference 14).

Table IV-12 indicates the weights assigned each parameter which were quantified through a judgmental analysis by the Consultants.

The index for each airport was calculated as the sum of the products:

(Weight of Parameter) X (Value Assigned)
for categories 2 through 5, in Table IV-12.

The index for each county was then calculated as the average of the indices for the individual airports of the counties, except in the case where one airport was found to handle 95% or more of the total county general aviation traffic. For

TABLE IV - 12

DEFINITION OF AIRPORT FACILITY INDEX

PARAMETER	WEIGHT	VALUE ASSIGNED IF YES	IF NO
1. Scheduled Air Carrier Service	.50		
0 Runways		0	-----
1 Runway		6/10	-----
2 Runways		8/10	-----
3 or more		1	-----
2. Corrected Runway Length	.25		
0' - 1249'		0	-----
1250 - 2199		1/5	-----
2200 - 2599		2/5	-----
2600 - 4499		3/5	-----
4500 - 7299		4/5	-----
7300 - 10,499		1	-----
10,499 +		1	-----
3. Runway Surface Paved	.83	1	0
4. Runway Lights	.83	1	0
5. Airport Attended by Manager	.083	1	0

these counties[1], the index was taken to be the index calculated for the one major airport. These averages were then incremented by the value of the product in Category 1, and the result was defined as the facility index for the county.

Table IV-13 presents a summary of airport data by county used in the calculation of this index.

The essential role of this index was that of a dummy index which allowed for a more favorable comparison among the Montana airports in this cross-sectional approach.

The two major groups defined were air carrier and general aviation airports. The facility index served to allow for the observed greater number of general aviation operations at the air carrier airports by assigning significant weight to them. Thus, in no way was this index intended to explain a causal relationship between airport characteristics and level of general aviation activity. Although the quality of service provided by airport facilities may indeed influence the volume of

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[1] Fergus, Lewis & Clark, Valley and Yellowstone

TABLE IV - 13

AIRPORT DATA BY COUNTY USED IN THE CALCULATION OF THE FACILITY INDEX

County	Airport(s)	Total Air Carrier Runways	Corrected Length of Longest Runway (feet)	Paved	Lighted	Attended	Facility Index **
Beaverhead		0					33
	Dillon		2170	Y	Y	Y	
	Dell		2642	Y	Y	N	
Big Horn		0					27
	Hardin		2412	Y	Y	Y	
Blaine		0					21
	Chinook		2785	Y	Y	Y	
	Harlem		2198	Y	Y	N	
	Turner		1814	N	N	N	
Broadwater		0					32
	Townsend		2649	Y	Y	Y	
Carbon		0					28
	Red Lodge		2022	Y	Y	Y	
	Bridger		2057	Y	Y	N	
Carter		0					22
	Ekalaka		1756	Y	Y	N	
Cascade		3					95
	Great Falls		5690	Y	Y	Y	
Chouteau		0					28
	Big Sandy		2034	Y	Y	N	
	Fort Benton		2200	Y	Y	Y	
	Geraldine		1751	Y	Y	N	
Custer		2					80
	Miles City		4471	Y	Y	Y	
Daniels		0					22
	Scobey		1856	Y	Y	N	
Dawson		2					80
	Glendive		4026	Y	Y	Y	

TABLE IV - 13 (continued)

County	Airport(s)	Total Air Carrier Runways	Corrected Length of Longest Runway (feet)	Paved	Lighted	Attended	Facility Index
Deer Lodge		0					35
	Anaconda		2509	Y	Y	Y	
Fallon		0					32
	Baker		2768	Y	Y	Y	
Fergus		3					90
	Lewistown		3393	Y	Y	Y	
	Winifred		1448	N	Y	N	
Flathead		3					85
	Kalispell		4895	Y	Y	Y	
	Kalispell Municipal		2483	Y	Y	Y	
Gallatin		4					85
	Bozeman		5646	Y	Y	Y	
	Three Forks		1959	Y	Y	N	
	West Yellowstone		4621	Y	Y	Y	
Garfield		0					22
	Jordan		2091	Y	Y	N	
Glacier		0					40
	Cut Bank		4077	Y	Y	Y	
Granite		0					22
	Philipsburg		1717	Y	Y	N	
Hill		2					
	Havre		3707	Y	Y	Y	
Judith Basin		0					22
	Stanford		2150	Y	Y	N	
Lake		0					25
	Polson		2473	Y	Y	Y	
	Ronan		2157	N	Y	N	
Lewis & Clark		3					95
	Helena		5777	Y	Y	Y	
	Lincoln		2367	Y	N	N	
Liberty		0					14
	Chester		2158	Y	Y	N	
Lincoln		0					38
	Eureka		2104	Y	Y	N	
	Libby		2879	Y	Y	Y	

TABLE 1V - 13 (continued)

County	Airport(s)	Total Air Carrier Runways	Corrected Length of Longest Runway (feet)	Paved	Lighted	Attended	Facility Index
McCone		0					22
	Circle		2119	Y	Y	Y	
Madison		0					9
	Ennis		2148	N	N	Y	
	Twin Bridges		2057	N	N	N	
Meagher		0					10
	White Sulphur Springs		2523	N	N	N	
Mineral		0					27
	Superior		2348	Y	Y	N	
Missoula		3					95
	Missoula		6459	Y	Y	Y	
Musselshell		0					35
	Roundup		2375	Y	Y	Y	
Park		0					21
	Livingston		2617	Y	Y	Y	
Phillips		0					38
	Malta		2329	Y	Y	Y	
Pondera		0					27
	Conrad		2360	Y	Y	Y	
	Valier		2285	N	N	Y	
Powder River		0					22
	Broadus		2176	Y	Y	N	
Powell		0					22
	Deer Lodge		2112	Y	Y	N	
Prairie		0					5
	Terry		1882	N	N	N	
Ravalli		0					35
	Hamilton		2575	Y	Y	Y	
Richland		2					80
	Sidney		3887	Y	Y	Y	
Roosevelt		1					62
	Wolf Point		3779	Y	Y	Y	

TABLE IV - 13 (continued)

County	Airport(s)	Total Air Carrier Runways	Corrected Length of Longest Runway (feet)	Paved	Lighted	Attended	Facility Index
Rosebud		0					28
	Forsyth		1716	Y	N	N	
	Ashland		2353	N	Y	Y	
Sanders		0					14
	Hot Springs		1787	N	Y	N	
	Plains		2075	N	Y	N	
	Thompson Falls		1740	N	Y	N	
Sheridan		0					38
	Plentywood		2276	Y	Y	Y	
Silver Bow		3					90
	Butte		3275	Y	Y	Y	
Still Water		0					22
	Columbus		1671	Y	Y	N	
Sweet Grass		0					32
	Big Timber		2724	Y	Y	N	
Teton		0					24
	Choteau		2449	Y	Y	Y	
	Dutton		1679	N	Y	N	
Toole		0					35
	Shelby		2450	Y	Y	Y	
Valley*		2					80
	Glasgow International		4323	Y	Y	Y	
	Opheim		2121	N	Y	N	
Wheatland		0					5
	Harlowton		1807	N	N	N	
Yellowstone*		3					95
	Billings		5237	Y	Y	Y	
	Laurel		2399	Y	Y	N	

*County Facility Index Calculated From Largest Airport Data Only.

**Based on 1972 Facility Data

SOURCE: Montana State Airport Directory; Federal Aviation Administration Forms 5010 and Field Inspection air traffic, the facility index was not defined as a measure of this effect as it would be naive and misleading. It was defined instead simply to classify the airports into groups which exhibited similar characteristics in 1970. Consequently, no forecast was attempted for this variable.

e. Based Aircraft Used as Taxis or by Business. Data for 1970 active based aircraft by airport and usage was taken from the FAA 8050-18 reports (Reference 17). It was decided that general aviation aircraft used as taxis or by business corporations were the most significant generators of itinerant operations. Hence, these two categories were aggregated by airport and county and incorporated into the analysis.

3. Derivation and Performance of the Regression Analysis

Several approaches to the cross-section regression analysis were attempted. Separate cross-section regressions were run for counties with air carrier airports and general aviation airports, but the performance of the resulting equations proved consistently poorer when compared to the equations derived for all counties combined.

Also, total general aviation operations (including local) were regressed against the explanatory variables, but the results here also proved less significant than using the itinerant component alone.

Listed below are the independent variables tested in various combinations and forms in the regression analysis:

County Per Capita Income
County Per Capita Income (Resident-Adjusted)
Number of Airports in County
Local Populations
Based Aircraft (Active and Total)
Population Density
Percent Employed in Agriculture
Percent Employed in Agriculture and Mining
Facility Index
County Population
Based Aircraft Used as Taxis or by Business

As stated in the introduction, the regression equation of best fit was given by:

$$
\begin{aligned}
&\log_{10} \text{ (County Itinerant Operations)} = 3.11087 \\
&\underset{(2.25)}{+\ .00594} \quad \text{(County Population)} \\
&\underset{(3.44)}{-\ .00953} \quad \text{(Percent Employed in Agriculture and Mining)} \\
&\underset{(2.01)}{+\ .00349} \quad \text{(Facility Index)} \\
&\underset{(5.19)}{-\ .47174} \quad (\log_{10} \text{ (Based Aircraft in Business or Taxi Service)}
\end{aligned}
$$

$$(.921 \pm .212)$$

Several properties of this equation are quite appealing. A cursory inspection reveals that the signs of the coefficients are all reasonable and the values of the T-statistics indicate that all coefficients are significantly non-zero with 95% confidence.

4. Forecasts of Independent Variables

a. Population. County population was forecast according to the method described in Section B4 of this chapter.

b. Percent Employed in Agriculture and Mining. Forecasts of agriculture and mining employment for the state of Montana, as a whole, were derived from the SURVEY OF CURRENT BUSINESS (Reference 1, Table 6). The quotients

$$\frac{\text{Total Income from Agriculture and Mining}}{\text{Per Capita Income}}$$

were examined for the years 1969, 1980 and 1990. From these values, the average annual (negative) growth rates in persons employed in agriculture were obtained for the intervals (1969-1980) and (1980-1990). The rates obtained were -2.1% and -1.3% respectively, where the latter was used through 1992.

Then, under the assumptions: (1) that the state growth rates apply uniformly to each county, and (2) that total county employment will remain exactly proportional to population, it was possible to project percent employed in agriculture and mining recursively to 1992. More specifically, let

Acy = persons employed in Agriculture & Mining for County C in year Y

Ecy = persons employed in County C in year Y

Pcy = Population of County C in year Y

k_i = Growth rate in persons employed in Agriculture & Mining. (1969-1980) $k_1 = -2.1\%$

(1981-1992) $k_2 = -1.3\%$

Then by assumption (1)

$$Ac(y+1) = (1+k_i)Acy \qquad i = 1, 2.$$

and by assumption (2)

$$\frac{Ac_{(y+1)}}{Ec_{(y+1)}} = (1+k_i) \left(\frac{Acy}{Ecy}\right)\left(\frac{Pcy}{Pc(y+1)}\right) \quad \text{for Counties C and years Y}$$

where $k_1 = -2.1\%$ (1969-1980)
and
$k_2 = -1.3\%$ (1981-1992)

c. Facility Index. In view of the nature of this index as a dummy variable used to classify the airports into categories of level of activity, it was both invalid and unnecessary to project its value into the future. Consequently, this variable was held constant for each airport throughout the forecasting period. This may not be interpreted to mean that facility improvements are unnecessary during the study period. Rather its purpose is to retain the classification levels provided for the 1970 estimates of activity.

d. Based Aircraft Used as Air Taxis or by Business. For each county, the number of based aircraft used for business purposes is projected to increase at an annual growth rate of 2.5% plus the county's population growth. This assumption is based on the finding that the growth rate of the number of based aircraft used for taxis and for corporate transportation is less than the overall growth rate of total based aircraft.

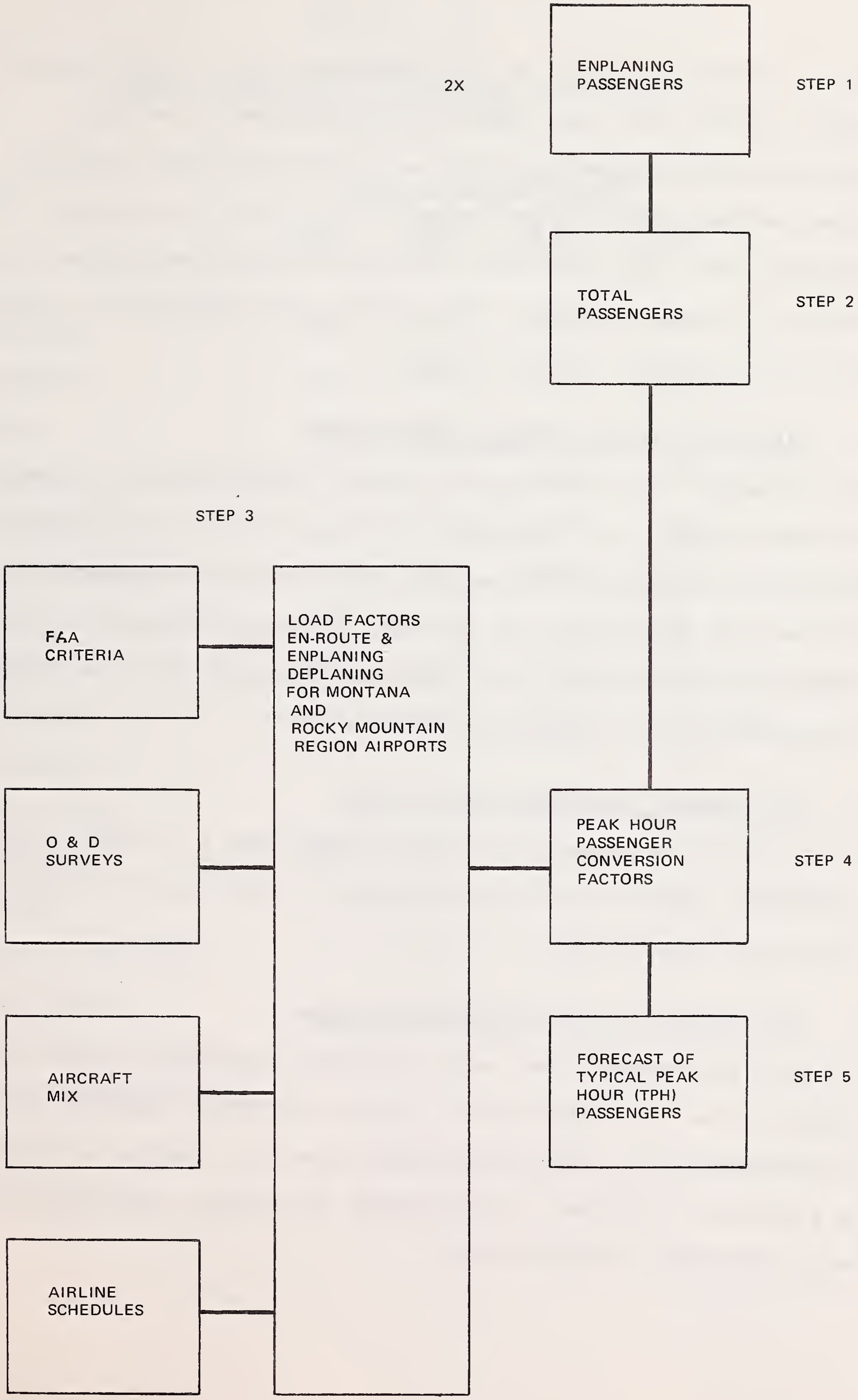
D. Aviation Forecasts Based on Conversions from Demand Data

1. Air Carrier Peak-Hour Passengers

As explained in the previous paragraphs, the remaining aviation forecast categories shown in Table IV-2 were derived directly or indirectly from the demand forecasts of air carrier enplaned passengers and general aviation itinerant operations. To derive peak-hour air carrier passengers, the Consulting Team developed a five step conversion procedure as shown in Figure IV-6. Peak-hour passenger conversion factors were developed from (a) a review of existing FAA guidelines (Reference 20 and Reference 21), (b) an analysis of CAB O&D data for Montana airports, and

FIGURE IV-6

FIVE STEP CONVERSION PROCEDURE


2X
ENPLANING PASSENGERS
STEP 1
TOTAL PASSENGERS
STEP 2
STEP 3
FAA CRITERIA
LOAD FACTORS EN-ROUTE & ENPLANING DEPLANING FOR MONTANA AND ROCKY MOUNTAIN REGION AIRPORTS
O & D SURVEYS
PEAK HOUR PASSENGER CONVERSION FACTORS
STEP 4
AIRCRAFT MIX
FORECAST OF TYPICAL PEAK HOUR (TPH) PASSENGERS
STEP 5
AIRLINE SCHEDULES

(c) a review of current air carrier schedules at each airport. These factors were then applied to the existing and past Montana airport passenger data as a check of their validity. After making several adjustments to the list of conversion factors, they were applied to the total projected carrier passengers for each airport. The results are summarized in Table IV-14 for each air carrier airport.

2. Total Air Carrier Annual Operations

The procedure for deriving air carrier operations for fifteen Montana airports is summarized in Figure IV-7. Air carrier operation forecasts were derived from the cross-sectional analysis of passengers per aircraft at other airports in the Rocky Mountain region. The resulting forecast developed from this procedure is contained in Table IV-15.

3. Air Carrier Peak-Hour Operations

Figure IV-8 illustrates the methodology used to project typical peak-hour airline aircraft operations. The results are compiled in Table IV-16.

4. Air Carrier Average Turnaround Time

Average turnaround times were projected according to the procedure shown in Figure IV-9. One of the major elements in determining the average turnaround time is a review of existing air carrier schedules. Projections of average turnaround time are summarized in Table IV-17.

TABLE IV - 14

FORECAST OF TYPICAL PEAK-HOUR PASSENGERS AT MONTANA AIR CARRIER AIRPORTS

Airport	Peak-Hour Passengers			
	1977	1982	1987	1992
1. Billings	414	650	700	900
2. Bozeman*	159	395	556	606
3. Butte	193	232	260	294
4. Glasgow	6	9	14	17
5. Glendive	5	7	8	10
6. Great Falls	364	502	650	798
7. Havre	2	4	7	10
8. Helena	139	176	217	259
9. Kalispell	55	107	175	247
10. Lewistown	2	5	7	9
11. Miles City	4	8	13	18
12. Missoula	199	250	280	313
13. Sidney	3	5	7	10
14. West Yellowstone	37	62	101	134
15. Wolf Point	3	5	7	8

*See Appendix I, No. 3.

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15. Wolf Point	3	5	7	8

*See Appendix I, No. 3.

FIGURE IV-7

FLOW CHART OF THE PROCEDURE FOR DEFINING TOTAL ANNUAL AIR CARRIER AIRCRAFT OPERATIONS

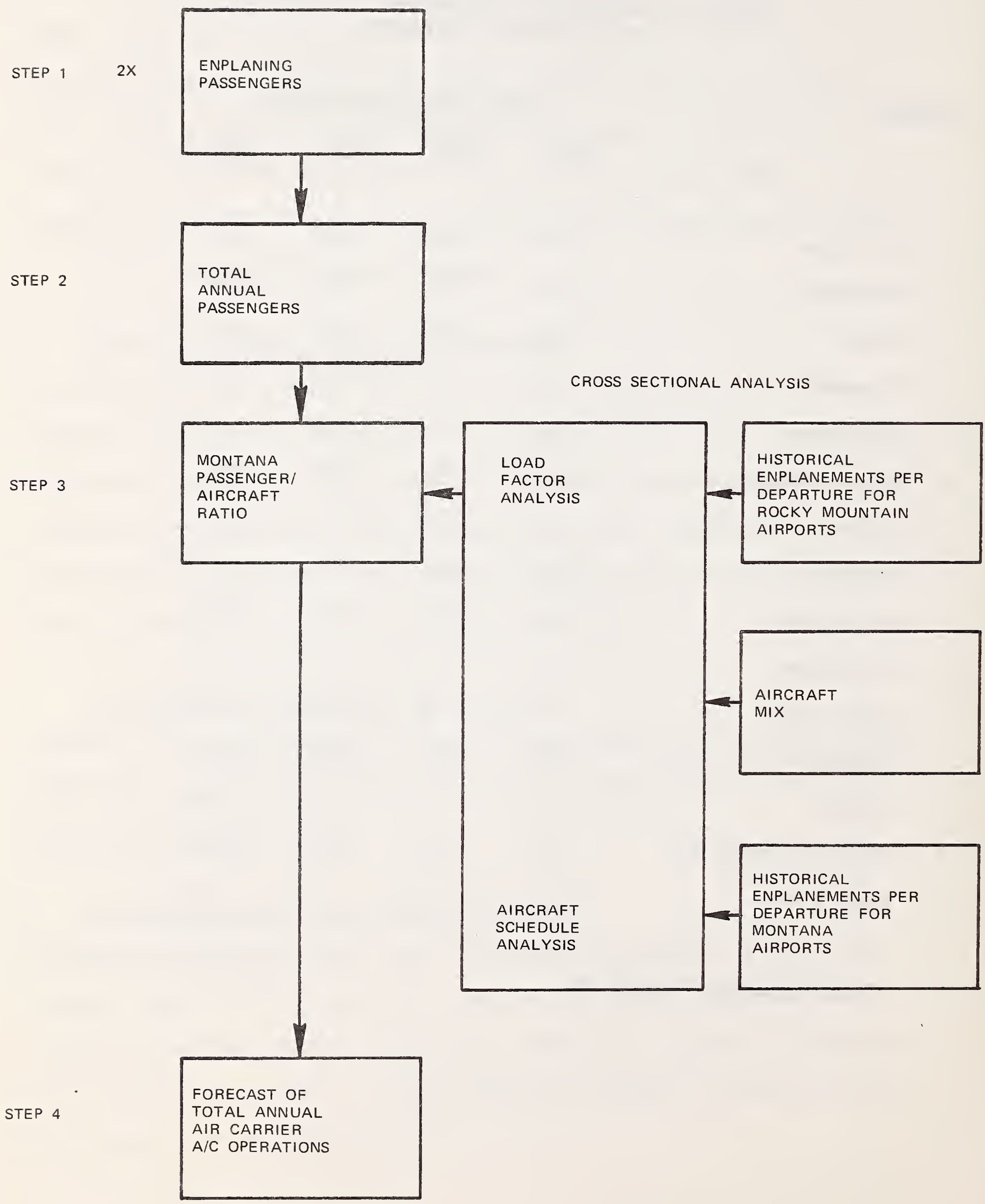

STEP 1
2X
ENPLANING PASSENGERS
STEP 2
TOTAL ANNUAL PASSENGERS
CROSS SECTIONAL ANALYSIS
STEP 3
MONTANA PASSENGER/ AIRCRAFT RATIO
LOAD FACTOR ANALYSIS
HISTORICAL ENPLANEMENTS PER DEPARTURE FOR ROCKY MOUNTAIN AIRPORTS
AIRCRAFT MIX
AIRCRAFT SCHEDULE ANALYSIS
HISTORICAL ENPLANEMENTS PER DEPARTURE FOR MONTANA AIRPORTS
STEP 4
FORECAST OF TOTAL ANNUAL AIR CARRIER A/C OPERATIONS

TABLE IV - 15

FORECAST OF TOTAL ANNUAL AIR CARRIER AIRCRAFT OPERATIONS

Airport	Aircraft Operations			
	1977	1982	1987	1992
1. Billings	22720	25158	31532	35142
2. Bozeman *	8860	14748	17692	19192
3. Butte	7226	8444	9900	12186
4. Glasgow	750	658	600	614
5. Glendive	950	970	980	990
6. Great Falls	16572	20294	23762	24138
7. Havre	800	800	860	900
8. Helena	5286	6838	8452	10486
9. Kalispell	2314	3500	5556	8800
10. Lewistown	934	2000	2400	3300
11. Miles City	1300	1556	1818	2100
12. Missoula	7876	9888	11610	13500
13. Sidney	820	870	890	900
14. West Yellowstone	2800	4112	6286	9750
15. Wolf Point	900	1166	1334	1542

*See Appendix I, No. 3.

FIGURE IV-8

FLOW CHART DEVELOPMENT OF TYPICAL PEAK HOUR
AIR CARRIER AIRCRAFT OPERATIONS

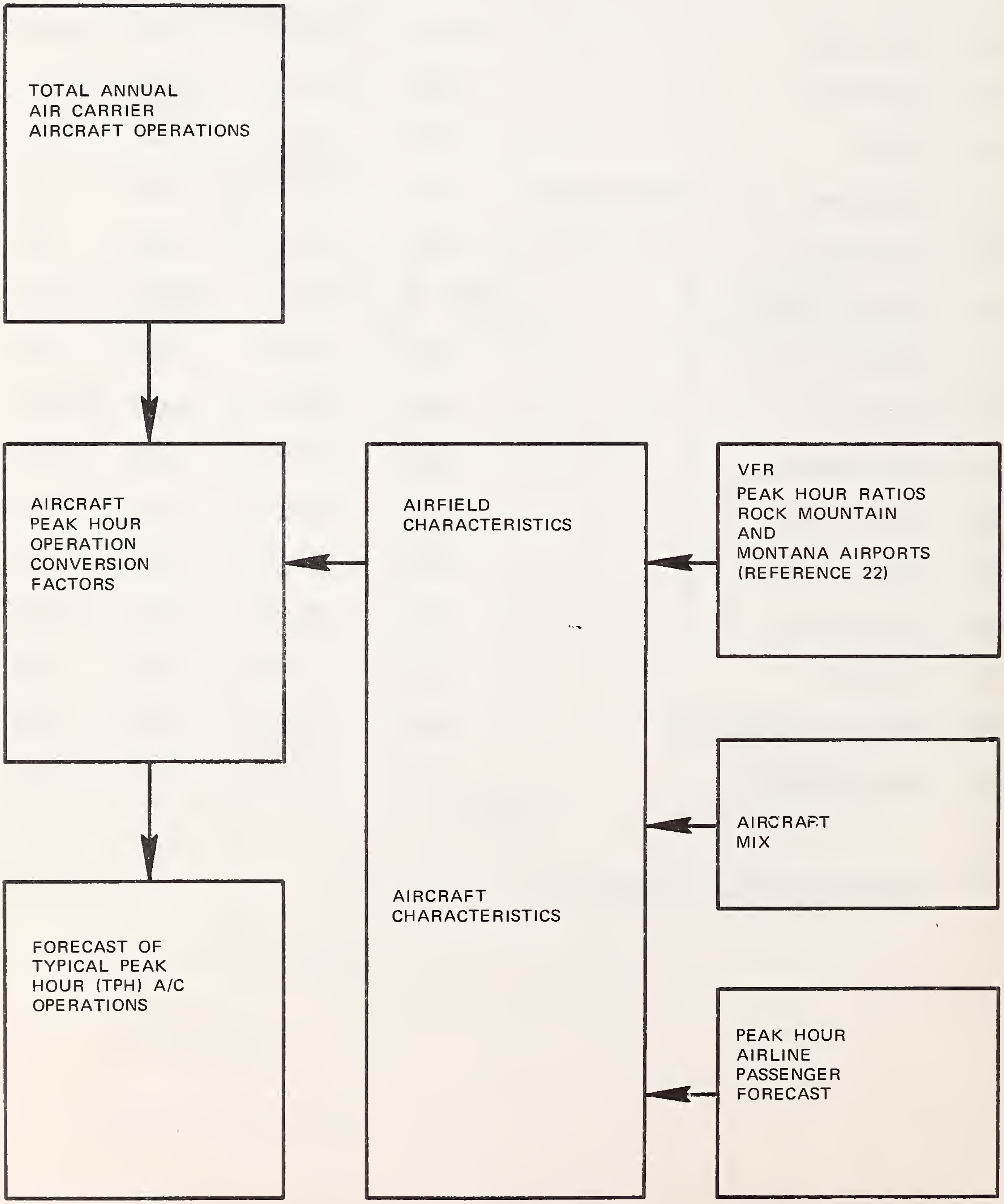

TOTAL ANNUAL AIR CARRIER AIRCRAFT OPERATIONS
AIRCRAFT PEAK HOUR OPERATION CONVERSION FACTORS
FORECAST OF TYPICAL PEAK HOUR (TPH) A/C OPERATIONS
AIRFIELD CHARACTERISTICS
AIRCRAFT CHARACTERISTICS
VFR PEAK HOUR RATIOS ROCK MOUNTAIN AND MONTANA AIRPORTS (REFERENCE 22)
AIRCRAFT MIX
PEAK HOUR AIRLINE PASSENGER FORECAST

TABLE IV - 16

FORECAST OF TYPICAL PEAK HOUR AIR CARRIER AIRCRAFT OPERATIONS

Airport	Peak Hour Aircraft Operations			
	1977	1982	1987	1992
1. Billings	14	15	16	18
2. Bozeman*				
3. Butte	5	6	7	7
4. Glasgow	2	2	2	2
5. Glendive	2	2	2	2
6. Great Falls	10	12	14	15
7. Havre	2	2	2	2
8. Helena	4	5	6	7
9. Kalispell	3	3	4	6
10 Lewistown	2	2	2	2
11. Miles City	2	2	2	2
12. Missoula	6	7	8	8
13. Sidney	2	2	2	2
14. West Yellowstone	2	2	2	2
15. Wolf Point	2	2	2	2

* See Appendix I, No. 3.

FIGURE IV-9

PROCEDURE FOR DERIVING AVERAGE TURNAROUND TIME

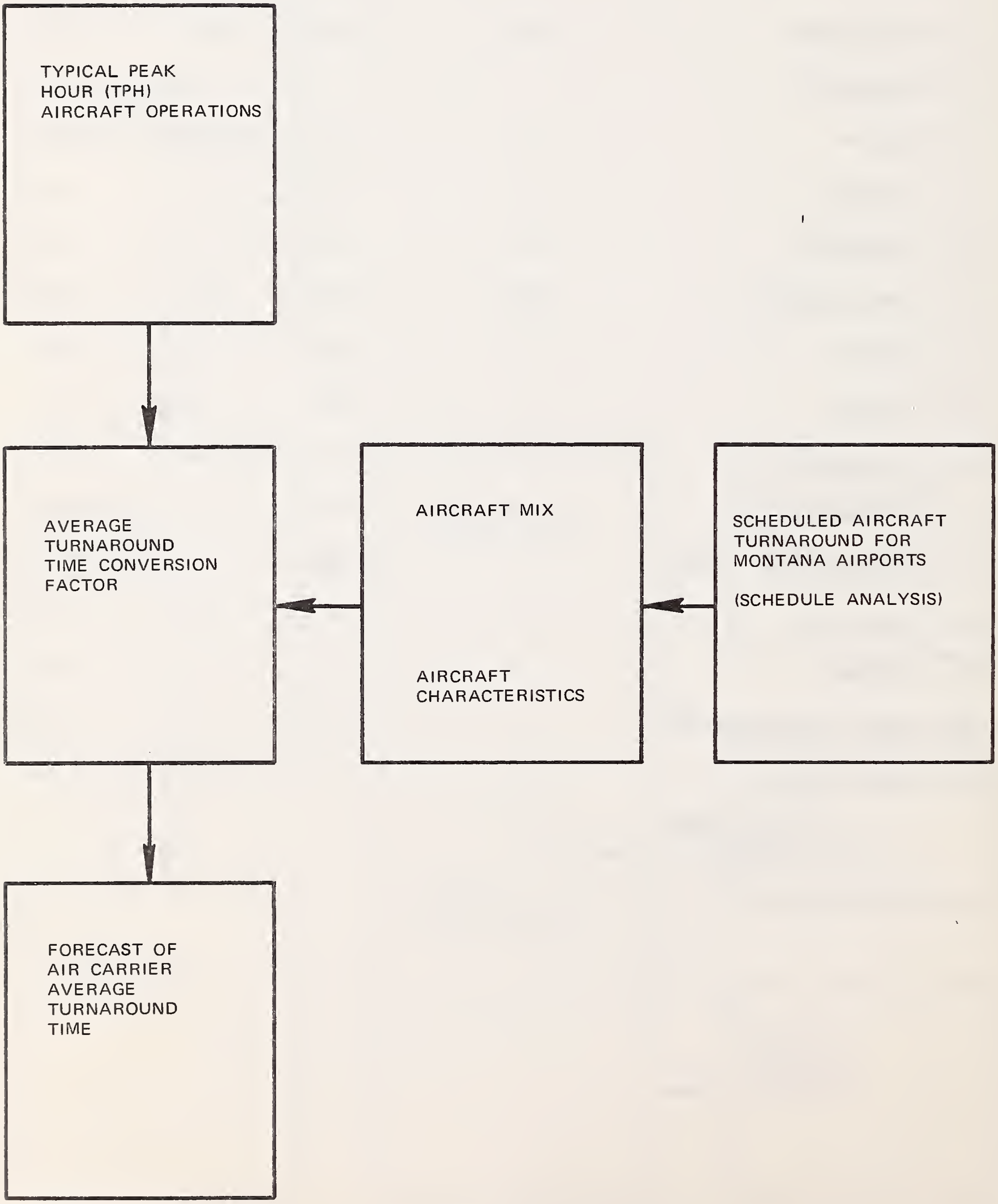

TYPICAL PEAK HOUR (TPH) AIRCRAFT OPERATIONS
AVERAGE TURNAROUND TIME CONVERSION FACTOR
AIRCRAFT MIX
AIRCRAFT CHARACTERISTICS
SCHEDULED AIRCRAFT TURNAROUND FOR MONTANA AIRPORTS
(SCHEDULE ANALYSIS)
FORECAST OF AIR CARRIER AVERAGE TURNAROUND TIME

TABLE IV - 17

FORECAST OF AIR CARRIER AVERAGE TURNAROUND TIME

Airport	Average A/C Turnaround Time (Minutes)			
	1977	1982	1987	1992
1. Billings	33	35	36	37
2. Bozeman*				
3. Butte	22	24	26	27
4. Glasgow	20	20	20	20
5. Glendive	10	12	14	16
6. Great Falls	34	36	38	39
7. Havre	10	12	14	16
8. Helena	20	22	24	26
9. Kalispell	15	17	19	21
10. Lewistown	7	9	10	11
11. Miles City	12	14	15	16
12. Missoula	20	22	24	25
13. Sidney	10	12	14	16
14. West Yellowstone	16	18	20	22
15. Wolf Point	7	9	10	11

* See Appendix I, No. 3

5. Air Cargo and Express

As in the air carrier enplaned passenger and general aviation itinerant operation forecasts, the Consulting Team relied upon a regression equation to project air cargo volume. As shown in Figure IV-10, the air cargo forecast procedure was divided into two areas:

1. Cargo and express (tons)
2. Mail (tons)

Air cargo forecasts were derived by use of a log-linear equation as shown below. The equation is derived from observations of twenty-four (24) years of historic air cargo data for the State of Montana, as regressed against the state personal income. The final equation has the form:

$$\text{Log (air cargo)} = 7.4687 + 3.1537 \text{ log personal income}$$

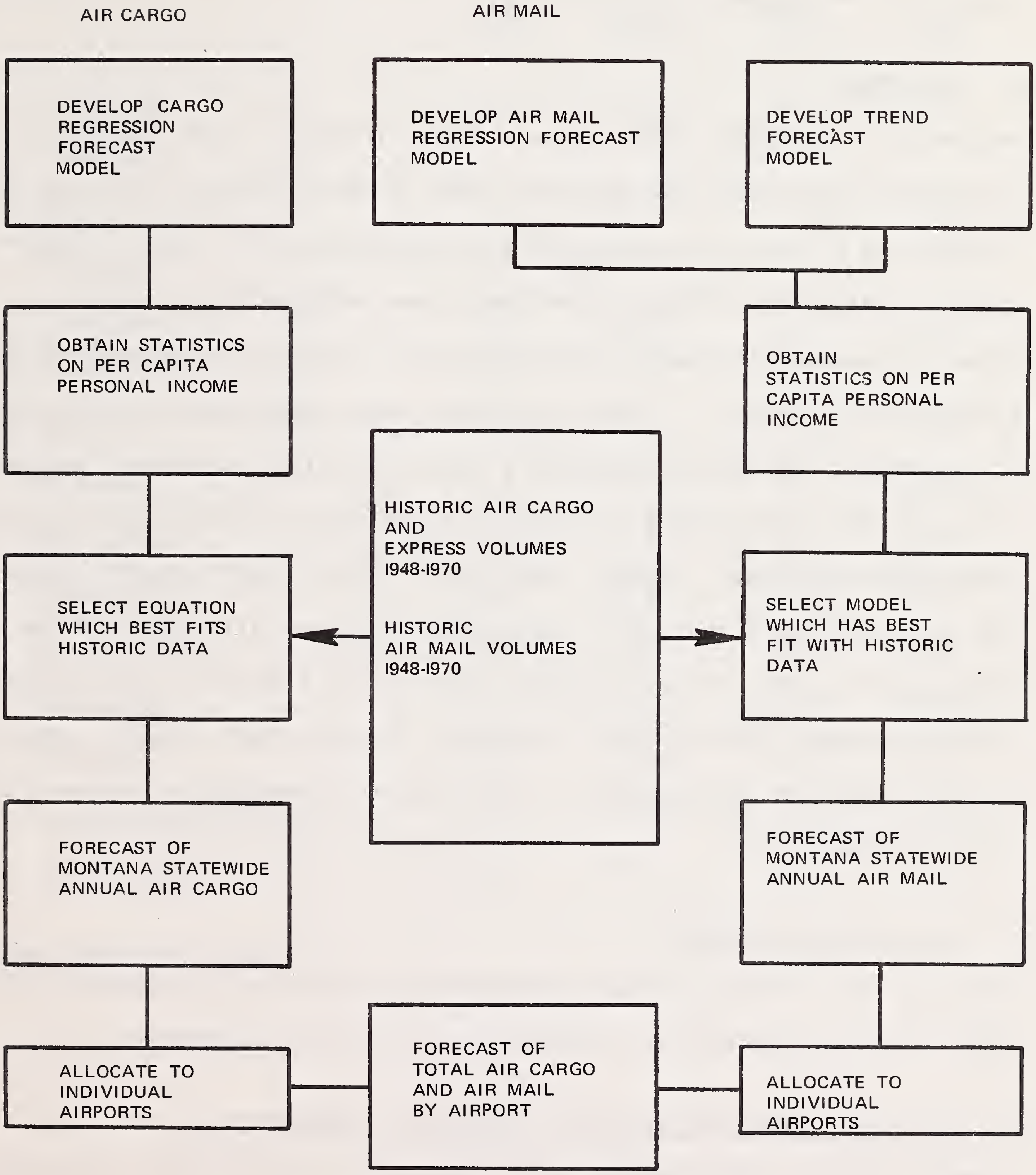
correlation coefficient equals .933

Forecasts of personal income for the state were obtained from the U. S. Bureau of Economic Analysis (Reference 1) and are shown below:

Year	Personal Income (Millions $)
1977	2754
1982	3352
1987	4137
1992	5088

FIGURE IV-10

MONTANA AIR CARGO FORECAST METHODOLOGY


AIR CARGO
AIR MAIL
DEVELOP CARGO REGRESSION FORECAST MODEL
DEVELOP AIR MAIL REGRESSION FORECAST MODEL
DEVELOP TREND FORECAST MODEL
OBTAIN STATISTICS ON PER CAPITA PERSONAL INCOME
OBTAIN STATISTICS ON PER CAPITA PERSONAL INCOME
HISTORIC AIR CARGO AND EXPRESS VOLUMES 1948-1970
HISTORIC AIR MAIL VOLUMES 1948-1970
SELECT EQUATION WHICH BEST FITS HISTORIC DATA
SELECT MODEL WHICH HAS BEST FIT WITH HISTORIC DATA
FORECAST OF MONTANA STATEWIDE ANNUAL AIR CARGO
FORECAST OF MONTANA STATEWIDE ANNUAL AIR MAIL
ALLOCATE TO INDIVIDUAL AIRPORTS
FORECAST OF TOTAL AIR CARGO AND AIR MAIL BY AIRPORT
ALLOCATE TO INDIVIDUAL AIRPORTS

Once the state-wide forecast totals of air cargo were obtained, they were allocated to each airport based upon independently projected percentage distributions.

6. Air Mail

Regression analysis relating air mail volumes to per capita personal income did not provide good results beyond 1967 due to a shift in U. S. postal regulations governing air mail. Effective in 1967, most first class mail was shipped by air on a capacity-available basis, resulting in a nonlinear upward shift in air mail volumes. Trend analyses were conducted in an attempt to interpret the shift through a curve fitting procedure using the good fit obtained for 1962-1967 air mail as regressed against per capita personal income combined with air mail growth rates for the 1967-1972 period. Forecasts of state air mail totals were allocated to each airport based upon the historical relationship between income and air mail tonnage. The air mail growth rates resulting from an application of the above procedure is shown in Table IV-18.

7. Air Cargo and Mail

Table IV-19 summarizes the forecasts of combined air cargo and mail for the fifteen (15) Montana air carrier airports.

8. Aircraft Mix and Critical Aircraft Forecasts

Runway length requirements are a function of the using aircraft

TABLE IV - 18

FORECAST OF GROWTH RATES FOR AIRMAIL

Airport	1977	1982	1987	1992
1. Billings	5.1	4.7	4.5	4.3
2. Bozeman *				
3. Butte	5.1	4.7	4.3	4.0
4. Glasgow	4.0	4.0	4.9	3.9
5. Glendive	4.0	3.9	3.8	3.7
6. Great Falls	4.6	4.3	4.0	3.9
7. Havre	4.0	4.0	4.0	3.9
8. Helena	4.9	4.5	4.0	3.9
9. Kalispell	4.5	4.2	4.1	3.9
10. Lewistown	4.0	3.8	3.8	3.8
11. Miles City	5.1	4.7	4.5	4.3
12. Missoula	5.1	4.7	4.5	4.3
13. Sidney	4.0	3.9	3.8	3.7
14. West Yellowstone	5.1	4.7	4.5	4.3
15. Wolf Point	4.6	4.3	4.0	3.9

* See Appendix I, No. 3

TABLE IV - 19

MONTANA STATE AIR CARGO FORECASTS (Tons)

	1977			1982			1987			1992		
	CARGO (Express & Freight)	MAIL	TOTAL	CARGO (Express & Freight)	MAIL	TOTAL	CARGO	MAIL	TOTAL	CARGO	MAIL	TOTAL
BILLINGS	898	1484	2382	1305	1867	3172	1935	2327	4262	2930	2872	5802
BOZEMAN *												
BUTTE	134	136	270	232	171	403	414	211	625	711	257	968
GLASGOW	19	9	28	58	11	69	135	13	148	276	16	292
GREAT FALLS	597	915	1512	1071	1130	2201	1740	1375	3115	2910	1664	4574
HAVRE	19	21	40	38	24	62	68	28	96	138	35	173
HELENA	94	115	209	171	143	314	315	174	489	552	210	762
KALISPELL	48	35	83	104	43	147	211	52	263	414	63	477
LEWISTOWN	19	8	27	38	9	47	68	10	78	138	12	150
MILES CITY	29	10	39	58	13	71	113	16	129	207	19	226
MISSOULA	128	142	270	235	178	413	405	222	627	690	274	964
WEST YELLOWSTONE	19	10	29	101	12	113	258	16	274	380	19	399
WOLF POINT	15	9	24	29	11	40	54	14	68	97	17	114
SIDNEY-GLENDIVE	25	12	37	40	14	54	65	16	81	105	19	124

*See Appendix I, No. 3

type and their haul lengths; such factors are direct inputs to the FAA airport classification process as outlined in Order No. 5090.3.

There are two aircraft categories: operational mix and seat capacity mix. Operational category is a function of aircraft type, and thereby affects airport runway capacity. The other category is based on the seat capacity of the individual aircraft and is related to terminal facilities (see Appendix II, No. 2 for definition of aircraft mix categories).

The future mix is interrelated with the number of passengers and operations, load factors, rate frequencies, stage lengths, and airline equipment policies. To develop the mix forecast therefore, is an iterative process from which an optimum must be picked. Since aircraft mix and total operations are mutually interdependent, operations forecasts are based upon the forecast aircraft mix and load factor.

Aircraft mix is derived from a cross-sectional analysis of schedules and passenger/aircraft ratios. For example, Billings was assumed to have DC-10 service by 1992, because the 35,000 air carrier operations projected for Billings for 1992 are at the same level of operation at which Tucson, Arizona, is now being served by the DC-10. The present 707 haul length for Billings is 1050 miles compared to 1400 for Tucson. The results for other airports have been similarly checked.

Of Montana's general aviation airports, presently only four have type "C" aircraft operations. However, that is expected to change by 1992; where type "C" aircraft are shown on the forecast, there is an expectation that small business jets will be in use.

Generally, in line with the air carrier forecasts, it may be assumed that the existing number of twin engine prop aircraft will be matched by type "C" aircraft by 1992. Judgment dictated that the percent "C" cannot exceed that of the small air carrier airports and that was set as the maximum. The lower limit was zero heavy twin engine aircraft. This model is consistent with the total Montana System.

One extra benefit of this type of analysis is that the critical aircraft are a by-product of the mix calculation and may be used as an airport classification input.

Appendix I, No. 3, contains a complete summary of current and projected aircraft mixes at each Montana airport.

9. Total General Aviation Operations

In order to arrive at the forecast of total general aviation operations (itinerant and local) the Consulting Team analyzed the trends in based aircraft at each airport for the past ten years together with estimates of itinerant and local operations contained in the FAA 5010-1 forms.

Forecasts of itinerant and local operation percentages were applied to the projected itinerant operations to arrive at the forecasts of total general aviation operations.

10. General Aviation Peak-Hour Operations

General aviation peak-hour operations were prepared following the procedure outline in Figure IV-11. The cross-sectional analysis included a review of Table 13 of Reference 21, "Total Aircraft Operation at General Aviation Airports by 1970". Conversion factors for peak-hour operations were developed by comparing average busy hour operations with total general aviation operations both for Montana and selected Rocky Mountain general aviation airports. By applying these to the forecast of total general aviation operations, it was possible to project peak-hour general aviation operations for each airport.

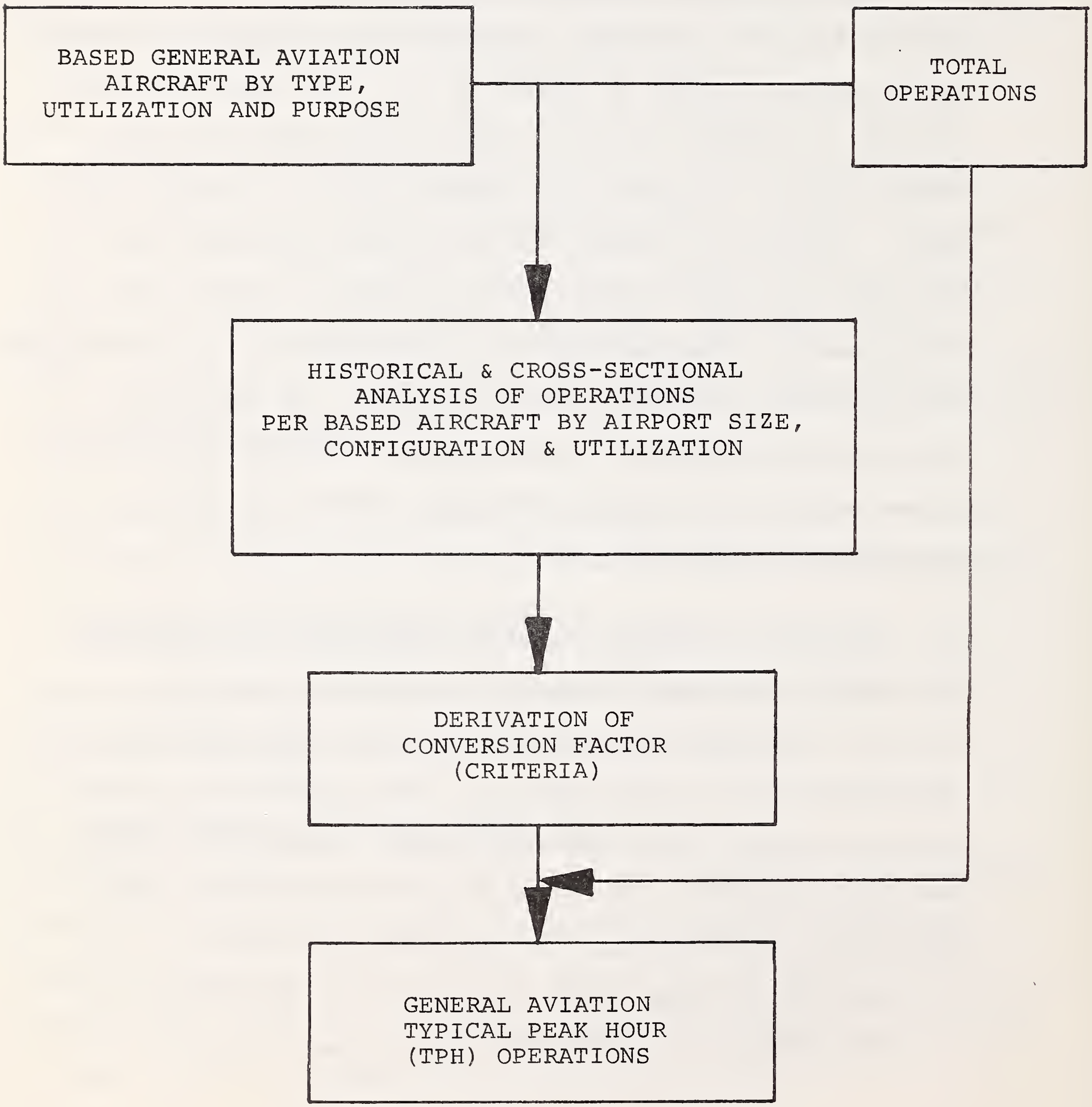
11. Forecast of General Aviation Peak-Hour IFR Operations

The factors utilized in generating peak-hour general aviation instrument operations were based upon developing percentage ratio of peak-hour G.A. IFR operations to total general aviation peak-hour operations. Based upon a cross sectional analysis of 1970 FAA data (Reference 21), the Consulting Team developed the following equation:

$$\text{Instrument Flight Rules G.A. Peak-Hour Operations} = .0970\ (\text{Total G.A. Peak-Hour Operations}) + .56$$

FIGURE IV-11

FLOW CHART DEVELOPMENT OF BASED GENERAL AVIATION AIRCRAFT PEAK HOUR OPERATIONS


BASED GENERAL AVIATION AIRCRAFT BY TYPE, UTILIZATION AND PURPOSE
TOTAL OPERATIONS
HISTORICAL & CROSS-SECTIONAL ANALYSIS OF OPERATIONS PER BASED AIRCRAFT BY AIRPORT SIZE, CONFIGURATION & UTILIZATION
DERIVATION OF CONVERSION FACTOR (CRITERIA)
GENERAL AVIATION TYPICAL PEAK HOUR (TPH) OPERATIONS

After the coefficient was adjusted to reflect the time trend, this equation was applied to derive IFR peak-hour operations. Increments of .02 are added for every 5 year period to incorporate the growing capability of general aviation aircraft and pilots to operate in instrument weather conditions.

12. Forecast of Air Carrier Peak-Hour IFR Operations

Exactly the same procedure as described previously in Section 11 was utilized to forecast air carrier IFR peak hour operations.

13. Based Aircraft Forecast

The ratio of itinerant operations per based aircraft was developed historically by analyses of the FAA 5010-1. By applying this to the itinerant operations forecast, a projection of all based aircraft at each airport was obtained.

14. Projections of Based Aircraft over 12,500 lbs.

In order to arrive at this forecast, the Consultant used the following relationships derived from FAA data:

1. For the average general aviation airport
    - (a) 10% of all based aircraft are multi-engine.
    - (b) 20% of all multi-engine aircraft in the general aviation fleet are over 12,500 lbs.

It follows that 2% of all general aviation aircraft, on the average, will be over 12,500 lbs. Accordingly, this factor was used to produce the forecasts of based aircraft over 12,500 lbs.

15. Other Forecasts

The other forecasts of the original list of twenty-three forecast categories shown in Table IV-1 were derived from other forecast elements by addition or subtraction. For example, the total for air carrier and general aviation IFR operations is simply the sum of the two elements developed previously.

E. REFERENCES - CHAPTER IV

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V. FUTURE AIRPORT SYSTEM REQUIREMENTS

A. Airport Classification

In order to determine facility requirements, a classification system is a necessity. Classification provides a ready means of gauging needs by categories, especially for general aviation airports. Airport classifications for each five-year period to 1992 are included in Appendix I, No. 1.

1. Air Carrier Airports are classified by aircraft runway length requirements into three basic types: A, B, and C. Each type is further divided according to stage lengths of its longest flying aircraft; from 0 to 500 miles; from 500 to 1500 miles; and over 1500 miles.

2. General Aviation Airports are classified in one of the following categories:

F3 - Feeder System
Aeronautical Density Low

BU - Basic Utility

GU - General Utility

BT - Basic Transport

GT - General Transport

MS - Montana State System Only

U - Local Interest Only

The term Montana State System Only or "MS" was used for the purpose of defining those airports which would qualify for the Montana State Airport System Plan, but not for the National Airport System Plan.

The symbol "U" means an airport does not qualify for either. The "MS" airport would have at least 25 to 99 ADF (aeronautical demand factor) points. The standards applied to the general aviation airports are shown in Table V-1.

B. Alternate Systems

Even though conditions were found which should be corrected to meet FAA Standards, the study showed that there are no severe shortages which result in airport congestion.

From the standpoint of airport location, the existing system is very close to optimum for serving the present distribution of demand. With the possible exception of Butte/Anaconda, the study did not disclose any need for developing a regional airport to combine facilities for one or more cities. A regional airport is recommended when the use of a single airport serving adjacent communities within 50 miles of each other results in a saving both to the Federal Government and the localities, and also improves the air service to the area. (AC 150/5090-1).

A possible scheduled air carrier airport concept was explored by examining transportation needs in terms of population and the growth potentials of various cities. Table V-2 lists all the Montana towns of population over 2,000 which are situated more than 50 miles from the nearest air carrier airport. None of these towns are greater than two hours travel time from the nearest air carrier airport. With three exceptions, all the towns are relatively isolated from other sizable towns. Therefore, the demand for commercial air travel in any of these towns is considered

TABLE V-1

STANDARDS APPLIED TO THE GENERAL AVIATION AIRPORTS

	BU	GU	BT	GT	MS*
Landing Strip					
Length	RW+300'	+300'	+400'	+400'	
Width	125'	175'	300'	300'	
Runway					
Length	Varies	Varies	Varies	Varies	
Width	50'-75'	75'-100'	100'	100'	
Taxiway Width	20'-40'	40'	40'	40'-60'	
Lateral Clearances					
Runway Centerline to Taxiway Centerline	150'-200'	150'-200'	200'	300'	
Runway Centerline to Property Line (a)	200'-350'	200'-350'	300'	350'	
(b)	250'-350'	250'-350'	300'	350'	
Runway Centerline to Building Restriction Line	250'-350'	300'-350'	250'-300'	350'	
Taxiway Centerline to Obstruction	50'	50'	105'	105'	
Lighting (MIRL)	Yes	Yes	Yes	Yes	
(MALS)					
(REILS)	If approach over community or 300 annual instrument operations or 2,750 annual enplaned passengers.				
(VASI)					
NAVAIDS					
ILS	700 annual instrument approaches				

SOURCES: FAA Advisory Circulars

150/5325 - 4
150/5335 - 1A
150/5335 - 2A
150/5325 - 23
150/5325 - 6A
150/5325 - 4A
150/5300 - 4A
150/5300 - 6
150/5330 - 2A

* Standards in accordance with the Montana State Division of Aeronautics.

TABLE V-2

ALL MONTANA COMMUNITIES OF 1970 POPULATION OVER 2,000 WITH DISTANCE TO NEAREST AIR CARRIER AIRPORT OVER 50 MILES

			Distance	
Community	1970 Population	Air Carrier Airport	Highway Miles	Approximate Travel Time (hrs.
Baker	2,584	Miles City	81	2
Conrad	2,770	Great Falls	58	1-1/2
Cut Bank	4,004	Great Falls	90	2
Dillon	4,548	Butte	60	1-1/2
Libby	3,286	Kalispell	90	2
Malta	2,195	Glasgow	71	1-3/4
Plentywood	2,381	Williston, N.D.	84	2
Roundup	2,116	Billings	53	1-1/2
Shelby	3,111	Great Falls	67	1-3/4

insufficient to support the development of an air carrier airport simply because of the small local population and the limited growth potential.

The development of an air carrier airport in the tri-city area of Cut Bank, Conrad and Shelby is not recommended for the following reasons: First, it is unlikely that sufficient demand for scheduled air carrier service could be sustained because of the high level of service already existing at Great Falls, which is only 67 miles from Conrad, 83 miles from Shelby, and 90 miles from Cut Bank. Second, with the expected completion of Interstate Highway 15, ground travel time to Great Falls will be reduced by approximately one-half hour, enhancing the ability of Great Falls International Airport to serve the tri-city area.

Further, because of the population and economic growth rates of major Montana cities are not expected to change drastically during the period covered by this study, no requirement for a new major international airport or major hub airport is anticipated. From the systems viewpoint, therefore, no alternatives to the recommended Airport System Plan appear.

For these reasons, system alternatives were considered only on an airport-by-airport basis for those locations which were forecast to have physical expansion problems during the period covered by the study.

C. Airport Needs by Type and Category

Actual airport needs were divided into two parts, landside and airside. For this study, the airside was defined as the runways, taxiways, runway exits, lights, NAVAIDS and items not within or serving the terminal complex. Landside items are the remaining items, or those embracing the terminal complex and its functions. These include: aprons, loading gates, terminal space, cargo storage, maintenance building area, hangar space and automobile parking space.

Appendix I, No. 3, includes an airside and a landside tabulation for each airport where development items are shown.

D. Airside Facility Requirements

Several airport requirements with different determining factors are encountered within this phase of airport planning. Runway length and strength requirements vary depending upon the demands of the using aircraft. The addition of parallel runways and/or taxiways depend upon the forecast peak hour movements; and

NAVAIDS and landing aids depend upon forecast IFR and VFR annual movements.

The standards applied are consistent with current FAA Advisory Circulars. General aviation standards are taken from AC 150/5300-6 for BT airports while AC 150/5300-4A is used for others. The same standards are applied to MS airports except for lighting. Air carrier standards are from AC 150/5330-2A. Table V-1 summarizes the standards applied to the Montana airports.

Land acquisition was included where space was required for either facilities or clearances. Purchase of easements were assumed where fee acquisition was not required.

High elevations or high maximum temperatures increase runway length requirements. Since the elevations of Montana's airports average 3400' and the mean maximum temperature is about 84°, a typical Montana airport requires 1.4 times the runway length of an airport at mean sea level and standard temperature.

Runway lengths for air carrier airports were calculated according to FAA criteria contained in FAA Advisory Circular 150/5325-4.

A corrected sea level, standard temperature runway length of 2,000 feet was established as the minimum for the general aviation airports. As a result, most of them will need lengthening. Where airports were in the NASP at the Basic Utility or General Utility classifications, standards were in accordance with AC 150/5300-4A "Utility Airports". FAA advisory circulars were applied similarly for other classes of airports as cited in Table V-1.

Many Montana general aviation airports are unpaved and some lack runway lights. It is thus necessary to select some variable or measure of activity as a criterion for determining levels for paving or lighting. Since the FAA National Airport System Plan (NASP) Aeronautical Demand Factor (ADF) System incorporates annual itinerant operations, based aircraft, and other factors relating to aviation demand, into a weighted total, it is a good criterion for development requirements.

Recommended development items are contained in Appendix I, No. 3. The following is an annotation of items considered most critical.

1. Air Carrier Airports

The airports in most critical need of development are Butte and Missoula. Both airports have restrictive terrain located within their missed approach paths, thereby necessitating very high IFR minima. This study adopts the recommendation of the "Butte Site Feasibility Study" that a new airport site should be selected at Butte. At Missoula, special instrument procedures can reduce the need for such action, but to achieve the minimum horizontal obstruction/building clearances on the ground, some reshuffling of facilities will be necessary. Because of peak-hour demand, this study recommends a parallel runway for Missoula in 1982, 10 years sooner than is shown in the current Missoula Master Plan.

If Butte should develop a site at the Stauffer Chemical area, as mentioned in their Master Plan, it is estimated that an airfield to meet needs to 1992, as well as replacement terminals, could be built for about 7 million dollars. Terminal developments for future growth total $1,850,000; the total price for the twenty year period is 8.9 million dollars.

For Bozeman, this study forecasts slightly lower traffic than shown in the current Master Plan, so the same developments are endorsed in Appendix I, No. 3 but staged two years later. These developments include a new terminal complex and other buildings within 5 years, and a parallel general aviation runway and parallel taxiways before 1992.

Billings will have some airfield congestion and will be lacking in general aviation area by 1982; therefore, Appendix I, No. 3 shows a general aviation runway and other developments in the area west of the existing airport.

Other major developments recommended are:

Helena - Relocate terminal area and build parallel general aviation runway (new master plan being formulated). Runway 8-26 should have an overlay by 1992.

Great Falls - Runway 16-34 should be extended and strengthened and a parallel taxiway should be added after 1977. A parallel runway 3-21 should be added in 1982.

Kalispell (G.P.I.) - Heavy traffic growth of this facility plus a possible shift of traffic from the Kalispell City Airport (see below) will necessitate construction of a parallel general aviation runway. Normal growth will require runway strengthening and terminal additions.

Lewistown - Runway reconstruction.

Glasgow - Runway reconstruction.

2. General Aviation Airports

91 general aviation airports are considered, including seven airports owned and operated by U.S. agencies in the facilities requirements portion of this report.

The greatest single construction cost for the general aviation airports would be expended for runway extension, as shown in the cost tables for each airport.

The following is a summary of major developments as contained in Appendix I, No. 3.

1) Ashland - New airport site - 1977.
2) Boulder - New airport site - 1987.
3) Cut Bank - Runway reconstruction.
4) Ennis - New airport - no delay.
5) Hamilton - Extensive runway construction.
6) Kalispell City - Removal of obstructions plus extensive runway lengthening necessary to accommodate demand would be extremely difficult at this site. It is recommended that a plan be adopted to shift traffic to Kalispell G.P.I. (above) before 1987.
7) Polson - New airport site - no delay.
8) Roundup - Runway reconstruction - miscellaneous.
9) St. Ignatius - New airport site - 1992.
10) Turner - Main runway paving.
11) Twin Bridges - Main runway paving.
12) Valier - Main runway paving.

E. Terminal Area Facility Requirement Estimates

In developing terminal facility requirements, parametric relationships between aviation demand forecasts and facilities were established upon the basis of existing FAA criteria set out in Aviation Demand and Facility Requirement Forecasts for Medium Air Transportation Hubs Through 1980, and upon in-house criteria.

Basically, 15 aviation demand indicators and 21 facility areas were derived in terms of area units of square feet and square yards.

The basic demand forecast inputs are:

1. Air Carrier Peak Hour Passengers
2. Total Air Carrier Annual Operations
3. Air Carrier Peak Hour Operations
4. Air Carrier Average Turn-Around Time
5. Annual Air Cargo (Freight, Express and Mail)

6. Percent of Aircraft Type X
7. Percent of Aircraft Type X-1
8. Percent of Aircraft Type L
9. Percent of Aircraft Type M
10. Percent of Aircraft Types S and T

11. Total GA Annual Operations
12. GA Peak Hour Operations
13. Percent GA Itinerant Operations
14. Based Aircraft Under 12,500 lbs.
15. Based Aircraft Over 12,500 lbs.

Aircraft types are determined by seat capacity.

Classification	Seats	Aircraft Type
X Type	Over 200	B-747, DC-8-60, SST, L-500
X-1 Type	255-345	L-1011, DC-10
L Type	120-199	B-707, B-720, CV-990, DC-8, B-727-200
M Type	75-119	CV-880, B-727, B-737, DC-9
S and T Types	74 or less	BAC-111, new F-27J, DC-6, DC-7, F-27A, etc.

The 21 facility requirement indicators are:

1. Air Carrier Terminal Area (SF)
2. Air Carrier Cargo Terminal Area (SF)
3. Airline AC Loading Positions (No.)
4. AC Loading & Bypass Apron Areas (SY)
5. AC Public Auto Parking Spaces (No.)

6. AC Public Auto Parking Areas (SY)
7. AC Airport Maintenance Apron Area (SY)
8. AC Airport Maintenance Building (SF)
9. Fire & Emergency Equipment Building (SF)
10. Number of Fire and Rescue Vehicles

11. GA Terminal Building Area (SF)
12. GA Aircraft Loading Positions (No.)
13. GA AC Loading & Bypass Apron Area (SY)
14. Itinerant Aircraft Parking Area (SY)
15. GA Based Aircraft Tie-Down Area (SY)

16. GA Conv. Hangar Bldg. and Apron Area (SY)
17. GA "T" Hangar Area (SY)
18. GA Public Vehicular Parking Space (No.)
19. GA Public Vehicular Parking Area (SY)
20. GA Airport Maintenance Apron Area (SY)

21. GA Airport Maintenance Building (SF)

F. Future Needs

1. Enroute NAVAIDS

The main navigation problem in Montana is the high terrain in the western part of the state.

Federal expenditure on enroute Navigational Aids for Montana has been limited in the past by the relatively low population density of the state and consequent low amount of air traffic. In spite of this it can be said that the enroute airway structure is inadequate to serve the present volume of air traffic or the volume projected for the study period.

However, in considering the present design of the air route structure, a comparison of minimum obstacle clearance altitude (MOCA) with authorized minimum enroute altitude (MEA) along some route segments indicates instances in which an additional IFR cardinal altitude could be realized by adding another VOR signal coverage at the MOCA. Instances are V 465 between Miles City and Williston, V 120 between Miles City and Lewistown, V 465 between Billings and Dunoir, and V 120 between Charlo intersection and Great Falls. Where only one altitude can be realized on an airway not now operating near capacity, the cost of the additional facility does not appear to be justified for the study period.

In another airway segment, that of V 430 between Glasgow and Williston, MOCA is 4600 feet and MEA is 6000 feet. A 5000 foot cardinal altitude could be gained by adding a VOR near Wolf Point and an air carrier airport could thus be provided a VOR instrument approach capability it now lacks. The dual benefit derived from a new VOR in the vicinity of Wolf Point appears to justify its installation and inclusion in the FAA Facilities and Equipment (F&E) Program.

On the V 120 route segment between Miles City and Dupree, MOCA is 6000 feet and MEA 9500 feet. A new VOR located midpoint on the segment to provide satisfactory signal coverage at MOCA could gain the cardinal altitudes of 6000, 7000 and 8000 feet. Although the traffic demand forecast does not support it, the cost of the added facility appears to be justified in terms of service and safety. The additional VOR, as an element of the air route structure, is an FAA funded and installed facility and would come under their Facilities and Equipment (F&E) program.

The route segment V 536 between Kalispell VOR and Gates Park intersection has a MOCA of 10,900 feet and a MEA of 14,000 feet. If the Kalispell VOR were relocated to a point just southwest of the Glacier Park International Airport, to reduce shadowing effect of the Mountain range to the east, a potential would exist of gaining 12,000 and 13,000 foot cardinal altitudes on this segment.

In addition, if as suggested the Kalispell VOR is moved to improve low altitude signal coverage to the east, a new airway segment could be established to shorten route distance between Cut Bank and Kalispell. The new airway could be based on the 220° radial of Cut Bank VORTAC intersecting V 536 approximately 30 miles east of the suggested new Kalispell VOR site. Taking into consideration the highest terrain of about 8,400 feet, it should be possible to establish a MEA of 11,000 feet on this segment.

Another consideration affecting the suggested move is that at its present location, Kalispell VOR provides for straight-in

VOR instrument approach to Runway 29 at Glacier Park International Airport. Moving the VOR to the new location would eliminate this capability. The new location would place the facility in position for straight-in approach to Runway 1. However, an ILS is now being installed on Runway 1, so a VOR approach to this runway would not be necessary.

For the short term, traffic density on the airways does not justify relocation of the Kalispell VOR at the cost of losing the approach capability to Runway 29. By midpoint in the study period (1983), a re-evaluation should be made of the need for the new airway versus the retention of the approach to Runway 29 at Glacier Park International Airport.

2. Terminal NAVAIDS

The recommended policy for air carrier airports is to provide ILS or MLS with MALSR (medium intensity approach light system with runway alignment indicator lights) where justified by FAA establishment criteria (APS-1).

The minimum requirement is for a VOR with a VASI (visual approach slope indicators) on the straight-in instrument approach runway. Facilities should be federally funded where justified by FAA establishment criteria. Where not justified for full federal funding, they should be funded under the ADAP program.

The recommended policy for general aviation airports in the state system plan is to provide ILS or MLS with MALSR, or VOR with VASI, as justified by FAA establishment criteria.

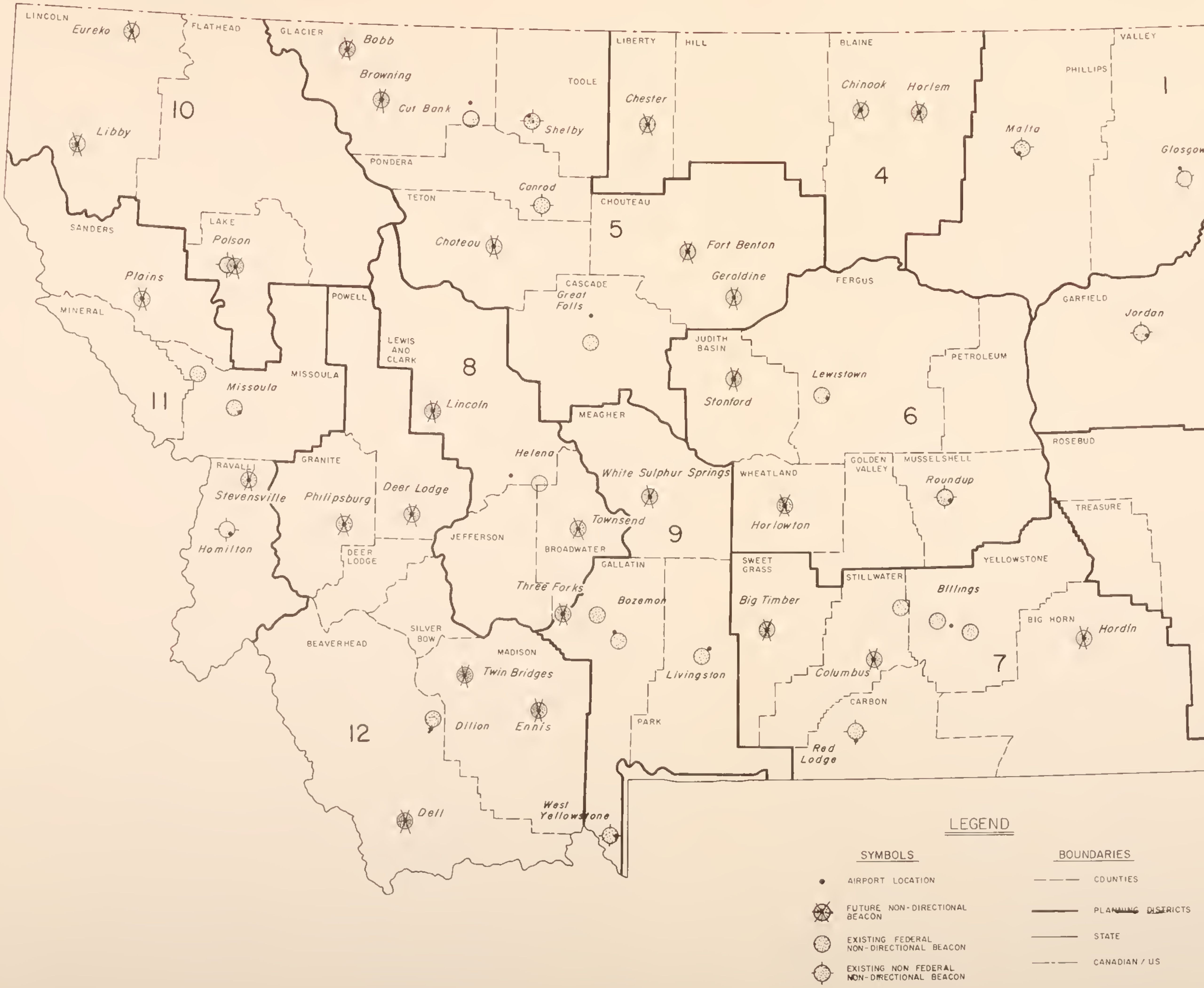
The minimum requirement is for a VOR or NDB with REIL (runway end identification lights), for those locations where IFR demand is predicted.

It will be noted that a number of NDB facilities are identified in Appendix I for airports which have a low level of predicted IFR activity. Where possible, such facilities should be aligned with the longest runway in order to provide an instrument approach capability down to straight-in approach minima. The requirements for these NDB's is stated in the belief that their installation will foster and encourage IFR activity and greatly enhance the safety of VFR flying both in the vicinity of the airports and throughout the state system. (See Figure V-1).

An airport-by-airport breakdown of Terminal NAVAID requirements is presented in Appendix I, No. 3.

As directed by the U.S. Congress in their review of the FY 1974 FAA budget, the FAA position on closing Flight Stations, is that no FSS will be closed until the replacement automated system is in operation in the area now served by the FSS.

The automated system referred to will provide pre-takeoff operations briefings for pilots in the fixed base operator facilities. The system includes a "mini-computer" with a


LINCOLN
Eureka
FLATHEAD
GLACIER
Bobb
Browning
Cut Bank
TOOLE
Shelby
LIBERTY
Chester
HILL
BLAINE
Chinook
Harlem
VALLEY
PHILLIPS
Malta
1
Glasgow Intl.
DANIELS
Scobey
SHERIDAN
Plentywood
ROOSEVELT
Wolf Point
Poplar
Culbertson
10
Libby
PONDERA
Conrad
TETON
Choteau
CHOUTEAU
5
Fort Benton
Geraldine
4
RICHLAND
Fairview
Sidney
MC CONE
2
Circle
DAWSON
SANDERS
LAKE
Polson
Plains
MINERAL
POWELL
CASCADE
Great Falls
FERGUS
GARFIELD
Jordan
Glendive
JUDITH BASIN
Stanford
Lewistown
PETROLEUM
PRAIRIE
LEWIS AND CLARK
8
MISSOULA
Missoula
11
Lincoln
MEAGHER
6
Terry
WIBAUX
ROSEBUD
CUSTER
Helena
White Sulphur Springs
WHEATLAND
Harlowton
GOLDEN VALLEY
MUSSELSHELL
Roundup
RAVALLI
Stevensville
GRANITE
Philipsburg
Deer Lodge
Townsend
9
FALLON
Baker
TREASURE
Miles City
Hamilton
DEER LODGE
JEFFERSON
BROADWATER
GALLATIN
SWEET GRASS
STILLWATER
YELLOWSTONE
CARTER
3
Three Forks
Bozeman
Big Timber
Billings
BIG HORN
Hardin
POWDER RIVER
Ashland
BEAVERHEAD
SILVER BOW
MADISON
Twin Bridges
Livingston
Columbus
7
Broadus
CARBON
12
Dillon
Ennis
PARK
Red Lodge
Dell
West Yellowstone
LEGEND
SYMBOLS
AIRPORT LOCATION
FUTURE NON-DIRECTIONAL BEACON
EXISTING FEDERAL NON-DIRECTIONAL BEACON
EXISTING NON FEDERAL NON-DIRECTIONAL BEACON
BOUNDARIES
COUNTIES
PLANNING DISTRICTS
STATE
CANADIAN / US

JAN 29, 1974

MONTANA STATE AIRPORT
SYSTEM PLAN

EXISTING AND RECOMMENDED
FUTURE NON - DIRECTIONAL
BEACONS

SCALE 0 20 40 MILES

FIGURE V-1

cathode ray tube readout. The information is received from a central computer which has stored data from automatic weather observing stations and the NOTAM (notice to airmen) system.

Airborne briefing and other FSS services are available at altitudes above 5000' where possible on the appropriate FSS frequency.

According to information furnished by the FAA Washington office, an operational test of the automated system was scheduled to start in January of 1974. When a successful test program has been achieved, procurement of the automated systems will begin, followed by installation and commissioning of the new systems as they become available.

The FAA source estimates no existing closings as a result of installation of the new system before mid-calendar year 1975 at the earliest.

In summary, it appears that the FAA is committed to a new system which they believe will provide an equivalent level of service at less cost. They are proceeding with a testing program to prove the new system, which appears to be a necessary and logical extension of computer technology. The achievement of satisfactory results for the aviation public will have to be demonstrated. In the meantime, the old system remains intact. Future needs, according to the FAA, cannot be served by the old system within budgetary limitations on manpower. Therefore, it is necessary to develop an automated system to keep pace with growing requirements. Identification of flight service stations to be closed has been deferred by FAA until the full capabilities of the automated system are determined and a satisfactory implementation program has been devised.

To assure adequate FSS and ATC communications coverage throughout the state, close coordination with FAA with respect to the projected changes in the flight service system and the existing discrepancies should be documented. Even though relatively sparse, air traffic in portions of the State should be cited to justify adequate communications coverage for the purpose of accident prevention and search and rescue functions.

VI. FINANCING

A. Introduction

The purpose of this section is to analyze the funding process for the maintenance, operation and development of the Montana State Airport System as required and to determine whether existing state and local funds under present statutes are adequate to meet projected improvement programs. A crucial assumption made in this chapter is that Federal funds, as required, would be made available as long as there are adequate state and local matching funds for the Montana State Airport development purposes.

In order to arrive at workable alternative financing programs, under this assumption, several new sources of funds are also investigated. In addition a third alternative implementation plan is presented in Chapter 7 - Implementation, which assumes that only the current level of Federal aid would be available for the next 20 year period.

The task of determining a viable financing plan is divided into three subtasks. First, the existing funding process is analyzed to determine the adequacy of funds available at the state and local levels to meet the total local share of airport development costs. This is done for the State Airport System and for each individual airport. Second, several sets of alternative sources of funds are investigated and a sensitivity analysis of tax rates is made. Third, two alternate plans are presented containing evaluations for short, intermediate and long-term planning periods. The economic consequences of each alternative are evaluated in terms of tax base and rate changes. The final recommendation includes possible courses of action for state and local governments to meet financial requirements for timely and optimal development of state airport facilities.

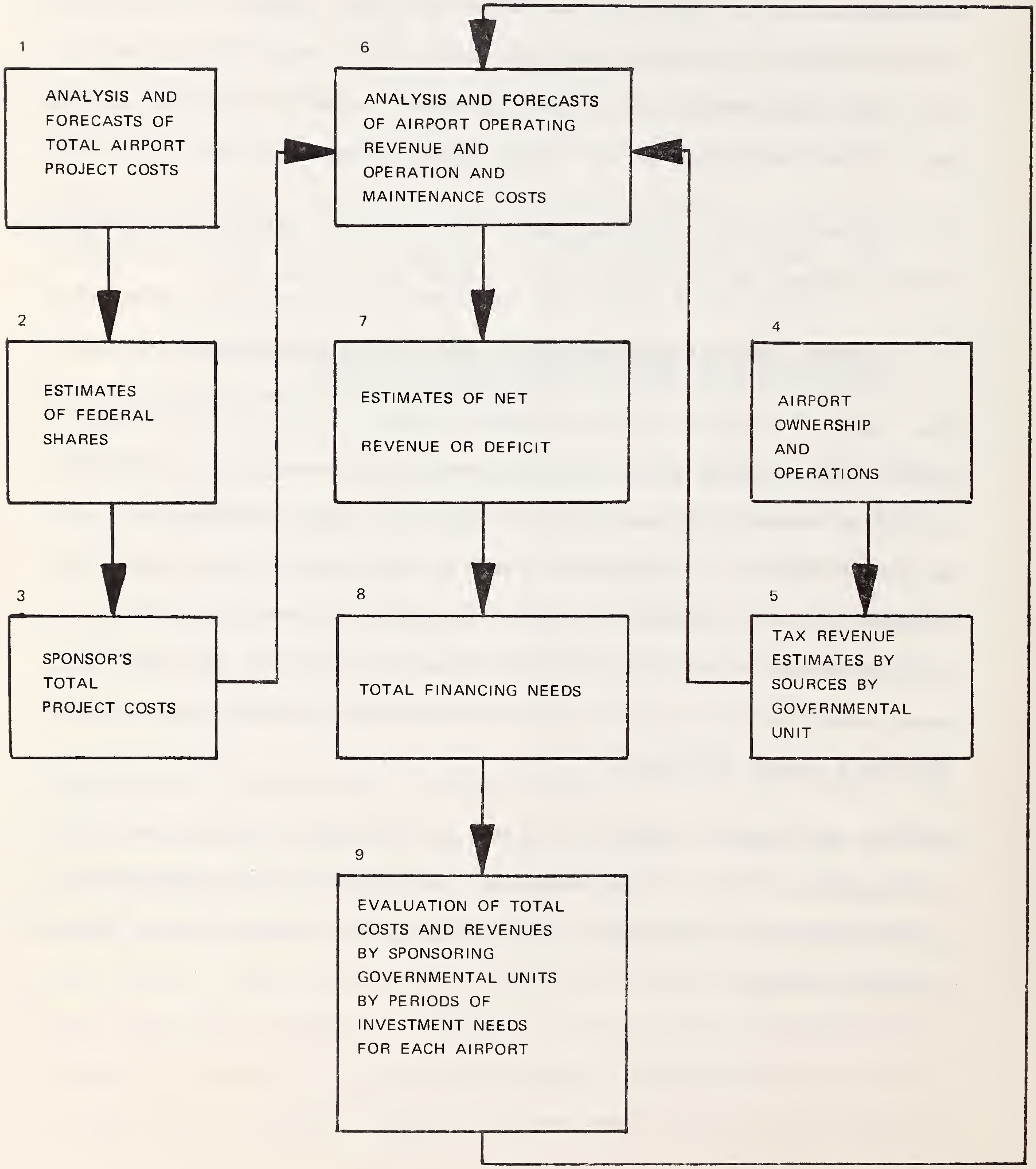
The procedure for carrying out the financial feasibility analysis is delineated in the flow chart shown in Figure VI-1.

B. Project Cost Estimates and Financing Requirements - (Total Project Costs of the State System)

The task of estimating the project costs for the entire state system development plan was performed by translating projected aviation demand indicators into facility requirements, by major categories - airfield, terminal and land (see Section V). Though it is not taken to the same level of detail as master plan studies, a sufficiently detailed analysis of facility requirements and costs was performed to facilitate the economic analysis which followed.

Future development costs for each individual airport are shown in Appendix I, No. 3, by Federal, State and local governmental participation, classified by implementation stage and by detailed facility items.

FIGURE VI-1
PROCEDURE OF THE FINANCIAL ANALYSIS AND EVALUATION


1
ANALYSIS AND FORECASTS OF TOTAL AIRPORT PROJECT COSTS
2
ESTIMATES OF FEDERAL SHARES
3
SPONSOR'S TOTAL PROJECT COSTS
6
ANALYSIS AND FORECASTS OF AIRPORT OPERATING REVENUE AND OPERATION AND MAINTENANCE COSTS
7
ESTIMATES OF NET REVENUE OR DEFICIT
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EVALUATION OF TOTAL COSTS AND REVENUES BY SPONSORING GOVERNMENTAL UNITS BY PERIODS OF INVESTMENT NEEDS FOR EACH AIRPORT
4
AIRPORT OWNERSHIP AND OPERATIONS
5
TAX REVENUE ESTIMATES BY SOURCES BY GOVERNMENTAL UNIT

1. Development of Project Costs

Detailed facility requirement estimates were prepared for each airport. These estimates were then compared to existing facilities and the new or expanded requirements derived. Unit costs by facility were then applied to these additional requirements to derive overall project costs for each stage of the study. Items that qualify for Federal assistance were then singled out. Appropriate rates of the Federal share were applied to obtain the total amount of the Federal share, and to estimate the development costs to be borne locally by sponsoring governmental units.

In determining respective financing requirements by state and municipalities, for the entire MSASP, Table VI-1 lists the 106 Montana airports by ownership. Fifteen of these airports are served by air carriers, and one of these (West Yellowstone) is state owned. The remaining 91 airports are general aviation airports, 7 are owned by Federal government agencies, 9 by the State of Montana, and 75 by municipalities. Municipalities is used throughout to include cities and/or counties or authorities and privately owned airports recommended for public ownership. Classifying the airports in this way differentiates the funding responsibilities and suggests which new or expanded sources of funds to investigate.

TABLE VI-1
MONTANA STATE AIRPORT SYSTEM PLAN AIRPORTS BY OWNERSHIP CLASSIFICATION

Federal

Benchmark
Cordon
Fort Smith
Meadow Creek
Schaffer
Spotted Bear
Troy

State

West Yellowstone*
Babb
Browning
Clinton
Dell
Lincoln
Sweet Grass
Tiber Dam
Towsend C.F.
Wolf Creek

Municipality

Billings*
Bozeman*
Butte*
Glasgow*
Glendive*
Great Falls*
Havre*
Helena*
Kallispell G.P.I.*
Lewistown
Miles City*
Missoula*
Sidney*
Wolf Point*

Annaconda
Ashland
Augusta
Baker
Big Sandy
Big Timber
Boulder
Bridger
Broadus
Chester
Chinook
Choteau
Circle
Columbus
Conrad
Culbertson
Cut Bank
Deer Lodge
Denton
Dillon
Drummond
Dutton
East Poplar
Ekalaka
Ennis
Eureka
Fairfield
Fairview
Forsyth
Fort Benton
Fortine
Geraldine
Hamilton
Hardin
Harlem
Harlowton
Hot Springs
Hysham
Jordan
Kallispell City
Laurel
Lavina
Libby
Livingston
Malta
Medicine Lake
Morgan
Opheim
Phillipsburg
Plains
Plentywood
Polson
Poplar
Red Lodge
Ronan
Roundup
Ryegate
St. Ignatius
Scobey
Seely Lake
Shelby
Standford
Stevensville
Superior
Terry
Thompson Falls
Three Forks
Townsend
Turner
Twin Bridge
Valier
White Sulphur Spring
Whitefish
Winifred
Wisdom

* Air Carrier Airport

Source:
Table II-4

The 7 airports owned and operated by Federal government agencies are excluded from the MSASP financial feasibility analysis. However, privately owned airports are treated as though they are owned and operated by the municipality, in the expectation that they will be acquired and therefore become eligible for Federal and state aide.

2. Results

Table VI-2 shows the airport development cost summaries of all 106 airports by stages, by Federal and state/local shares and by land and airfield areas. The total cost for overall system development of 106 airports including 7 Federally operated airports for the 1974 - 1992 period is $79 million, of which $45 million (57%) is anticipated to be Federal, with the balance of $34 million to be state and local. The Federal aid will only be realized if matching local funds are provided.

Table VI-3 shows the MSASP development cost summaries of the 99 airports, owned and operated by the state and municipalities and part of the MSASP, by the same categories. It shows that the period 1974 through 1977 has the highest total development costs, which reflects the fact that existing facilities in Montana will not adequately meet demand without substantial near term improvements. During this period the total (non-Federal) state and local share of development costs amounts to $21 million and accounts for approximately 61% of the total state and local financing need for the entire 20 year period.

TABLE VI-2
SUMMARY OF TOTAL DEVELOPMENT COSTS OF ALL AIRPORTS IN THE MONTANA STATE AVIATION SYSTEM PLAN INCLUDING 7 FEDERALLY OWNED AIRPORTS
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-1977	Federal	5,482	21,286	26,768
	St/Loc	12,994	7,610	20,604
	Total	18,476	28,874	47,350
1978-1982	Federal	164	9,947	10,111
	St/Loc	3,879	2,592	5,471
	Total	3,043	12,539	15,482
1983-1987	Federal	1,073	6,001	7,074
	St/Loc	2,871	1,633	4,504
	Total	3,944	7,634	11,578
1987-1992	Federal	291	1,082	1,373
	St/Loc	3,114	306	3,420
	Total	3,405	1,388	4,793
Totals	Federal	7,010	38,316	45,326
	St/Loc	21,858	12,141	33,999
	Total	28,868	50,435	79,303

TABLE VI-3
TOTAL DEVELOPMENT COSTS OF AC AND GA AIRPORTS OWNED BY THE STATE AND MUNICIPALITIES
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-1977	Federal	5,471	21,245	26,716
	St/Loc	12,994	7,610	20,604
	Total	18,465	28,833	47,298
1978-1982	Federal	160	9,937	10,107
	St/Loc	2,879	2,592	5,471
	Total	3,039	12,539	15,578
1983-1987	Federal	1,062	6,001	7,063
	St/Loc	2,871	1,633	4,504
	Total	3,933	7,634	11,567
1987-1992	Federal	274	1,082	1,356
	St/Loc	3,114	306	3,420
	Total	3,388	1,388	4,776
Totals	Federal	6,967	38,275	45,242
	St/Loc	21,858	12,141	33,999
	Total	28,825	50,394	79,219

Tables VI-4 and VI-5, respectively, show development cost summaries of air carrier and general aviation airports owned by the state and municipalities. Table VI-6 shows the development costs of only the 9 state-owned general aviation airports, by the same categories.

Table VI-7 contains the total development costs of air carrier and general aviation airports exclusively owned or recommended to be owned by municipalities (cities & counties). Development costs respectively for air carrier airports and general aviation airports are shown in Tables VI-8 and VI-9.

A comparison of Tables VI-3, VI-4 and VI-5 reveals that air carrier airports require a predominant portion of the total development costs, amounting to approximately $66 million of a total of $79 million, of approximately 84% of the total development costs. The state and local financing needs for air carrier airport developments is almost $29 million of the total $34 million or about 85%, while general aviation airports require $5 million or 15% of the total.

Evaluation of the state and municipal financing needs (non-Federal) by period, shows that for the 1974 - 1977 period, air carrier airports will require about $17 million, or 59% of the total for the 20 year period; while general aviation airport development costs will amount to $3.6 million for the 1974 - 1977 period, or 71% of the total required for the entire study period.

TABLE VI-4
TOTAL DEVELOPMENT COSTS OF AIR CARRIER AIRPORTS OWNED BY THE STATE AND MUNICIPALITIES
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-1977	Federal	5,149	16,243	21,392
	St/Loc	11,919	5,035	16,954
	Total	17,068	21,278	38,346
1978-1982	Federal	100	9,369	9,469
	St/Loc	2,682	2,442	5,124
	Total	2,782	11,811	14,593
1983-1987	Federal	994	4,452	5,446
	St/Loc	2,670	1,151	3,821
	Total	3,664	5,603	9,267
1987-1992	Federal	192	358	550
	St/Loc	2,881	92	2,973
	Total	3,073	450	3,523
Totals	Federal	6,435	30,422	36,857
	St/Loc	20,152	8,720	28,872
	Total	26,587	39,142	65,729

TABLE VI-5
TOTAL DEVELOPMENT COSTS OF GENERAL AVIATION AIRPORTS OWNED BY THE STATE AND MUNICIPALITIES

(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-77	Federal	322	5,002	5,324
	St/Loc	1,075	2,575	3,650
	Total	1,397	7,555	8,952
1978-82	Federal	60	578	638
	St/Loc	197	150	347
	Total	257	728	985
1983-87	Federal	68	1,549	1,617
	St/Loc	201	482	683
	Total	269	2,031	2,300
1987-92	Federal	82	724	806
	St/Loc	233	214	447
	Total	315	938	1,253
Totals	Federal	532	7,853	8,385
	St/Loc	1,706	3,421	5,127
	Total	2,238	11,252	13,490

TABLE VI-6
TOTAL DEVELOPMENT COSTS OF STATE OWNED AIRPORTS
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-77	Federal	67	1,259	1,326
	St/Loc	82	279	361
	Total	149	1,538	1,687
1978-82	Federal	2	0	2
	St/Loc	27	0	27
	Total	29	0	29
1983-87	Federal	6	86	92
	St/Loc	253	23	276
	Total	259	109	368
1987-92	Federal	5	0	5
	St/Loc	257	25	282
	Total	262	25	287
Totals	Federal	80	1,345	1,425
	St/Loc	619	327	946
	Total	699	1,672	2,371

TABLE VI-7
TOTAL DEVELOPMENT COSTS OF AC AND GA AIRPORTS OPERATED BY MUNICIPALITIES
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-77	Federal	5,404	19,986	25,290
	St/Loc	12,912	7,331	20,243
	Total	18,316	27,295	45,611
1978-82	Federal	158	9,947	10,105
	St/Loc	2,852	2,592	5,444
	Total	3,010	12,539	15,549
1983-87	Federal	1,056	5,915	6,971
	St/Loc	2,618	1,610	4,228
	Total	3,674	7,525	11,199
1987-92	Federal	269	1,082	1,351
	St/Loc	2,857	281	3,138
	Total	3,126	1,363	4,489
Totals	Federal	6,887	36,930	43,817
	St/Loc	21,239	11,814	33,053
	Total	28,126	48,722	76,848

TABLE VI-8
TOTAL DEVELOPMENT COSTS OF AIR CARRIER AIRPORTS OPERATED BY MONTANA MUNICIPALITIES
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-77	Federal	5,093	15,081	20,174
	St/Loc	11,877	4,823	16,700
	Total	16,790	19,904	36,874
1978-82	Federal	99	9,369	9,468
	St/Loc	2,663	2,442	5,105
	Total	2,762	11,811	14,573
1983-87	Federal	993	4,452	5,445
	St/Loc	2,429	1,151	3,580
	Total	3,422	5,603	9,025
1987-92	Federal	189	358	547
	St/Loc	2,635	92	2,727
	Total	2,824	450	3,274
Totals	Federal	6,374	29,260	35,634
	St/Loc	19,604	8,508	28,112
	Total	25,978	37,768	63,746

TABLE VI-9
TOTAL DEVELOPMENT COSTS OF GENERAL AVIATION AIRPORTS OPERATED BY MONTANA MUNICIPALITIES
(in thousands of 1972 dollars)

Development Period	Participation	Landside Area	Airside Area	Total
1974-77	Federal	311	4,905	5,216
	St/Loc	1,035	2,508	3,543
	Total	1,346	7,391	8,737
1978-82	Federal	59	578	637
	St/Loc	189	150	339
	Total	248	728	976
1983-87	Federal	63	1,463	1,526
	St/Loc	189	459	648
	Total	252	1,922	2,174
1987-92	Federal	80	724	804
	St/Loc	222	189	411
	Total	302	913	1,215
Totals	Federal	513	7,670	8,183
	St/Loc	1,635	3,306	4,941
	Total	2,148	10,954	13,102

The total Federal aid for the state and municipal airports amounts to approximately $45 million, or 57% of the $79 million total. This includes $37 million or 56% of the total cost for air carrier airports, and $8 million or 62% of the total cost for general aviation airports.

Table VI-10 shows an overall summary of financing needs of municipalities classified by air carrier and general aviation airports. Air carrier and general aviation development costs to local municipalities are estimated to be $28 million and $5 million, respectively, with a combined total of $33 million. During the initial period of 1974 - 1977, more than $20 million from municipalities or 61% of that total are required to finance the developing facilities, with air carrier airports accounting for nearly 83% of the financing needs.

Financial requirements decline from $20 million in the 1974 - 1977 period to $3 million in the 1987 - 1992 periods. The high level of investments for the short term period suggests the current inadequacy of airport facilities in Montana as determined from FAA and other engineering standards.

3. Qualifications

Analysis of project costs so far has been limited to classification of state or municipal authority responsible for providing the non-Federal funds to match the projected Federal aid.

TABLE VI-10
SUMMARY OF TOTAL LOCAL SHARE OF AIRPORT DEVELOPMENT COSTS FOR AIR CARRIER AND GENERAL AVIATION AIRPORTS OWNED BY MONTANA MUNICIPALITIES

1. Cost Summary

(In Thousands of 1972 Constant Dollars)

	1974-77	1978-82	1983-87	1988-92	Total
Air Carrier	16,700	5,105	3,580	2,727	28,112
General Aviation	3,543	339	648	411	4,941
Total	20,243	5,444	4,228	3,138	33,053

2. Percent Distribution by Airport Category

	1974-77	1978-82	1983-87	1988-92	Total
Air Carrier	82.5	93.8	84.7	86.9	85.1
General Aviation	17.5	6.2	15.3	13.1	14.9
Total	100.0	100.0	100.0	100.0	100.0

The total development costs for airports operated by the state as shown in Table VI-6 represent only the development costs associated with improvement and expansion of airport facilities to satisfy projected demand. Determination of the total costs to the state requires the further addition of the costs of operation and maintenance of state owned airports (O&M) plus the administrative costs of the State Aeronautics Division. This is discussed in detail in Section VI-C.

The system development costs for airports owned by municipalities shown in Table VI-10 are only those costs which would require local financing. The airport mill tax imposed on city and county personal property taxable valuations is the property tax designated specifically for airport development and maintenance.

The prospective Federal aid amounts are not included in Table VI-10. Financial feasibility analyses are presented in Sections VI-D and VI-E, both on the basis of these cost estimates for the airports owned and operated by the state and municipalities, and upon the revenue generating capacities of the airports and the state and municipalities.

C. Analysis of Airport Financing Under Current Procedures

Because of differences in sources of funds and tax bases, analysis of revenues under existing statutes and procedures is conducted for both state and municipal government. Municipal revenues for airport development and operations are further divided into county and city levels.

Revenues to support state operated airports are derived essentially from aviation fuel taxes and airport operating revenues. Property tax for airports is the only source of tax revenues for airports operated by municipalities. The net operating revenues of individual airports are the additional source of revenues.

1. State

State owned airports are now financed by the State Aeronautics Division with revenue from:

- Aviation fuel tax
- Airport operating revenue
- Other revenue

Aviation fuel tax accounts for approximately 80% and 78% in 1971 and 1972, respectively, while the rest is derived from airport operation revenue and revenue from other sources including technical reports, registration fees, radio and NAVAIDS charts and directories, airport aids, books and supplies, air carrier fees, etc.

Table VI-11 shows the historical data on Montana State Aeronautics Division (MSAD) revenues. In 1972, the total income amounted to $435,000, of which $341,000 was derived from the one cent aviation fuel tax and $50,000 from state owned airport operations.

TABLE VI-11
MONTANA STATE GOVERNMENT AVIATION-RELATED INCOME ($)

Year	Total	Aviation Fuel Tax (1¢)	Other*	Airport Operations**
58	153,997	152,118		---
59	199,101	187,715		---
60	280,319	273,034		---
61	332,651	290,967		---
62	581,815	546,267		---
63	668,225	594,746		---
64	595,320	588,878		---
65	562,198	546,709		---
66	710,896	671,005	39,891	35,259
67	513,769	466,995	46,774	35,193
68	623,734	570,687	53,047	45,606
69	367,947	280,664	87,283	46,139
70	467,132	346,097	121,035	42,933
71	384,951	306,316	78,635	49,144
72	435,319	341,359	93,960	49,657

* Other includes income from:

Airport Operations
Technical Reports
Registration Fees
Radio & NAVAIDS
Charts & Directories
Airport Aids
Books & Supplies
Aviation History Projects
Air Carrier Fees
Other Income
V.A. Income (License of Schools)

** Included under other sources of revenue

Source: Montana State Aeronautics Division

MSAD makes low interest loans to airports on the basis of facility needs, but is restricted to loans of not more than $40,000 to any one airport at one time.

During fiscal years 1969 and 1973, MSAD operated at a deficit of about $120,000 on an annual cash flow basis. Thus MSAD cannot possibly consider financial aid to airports at this time. Therefore, the State must investigate new sources of funds or an improved tax base and/or rates or a combination of these.

2. Municipalities (County and City or Authority)

At present the county- and/or city- or Authority-owned airports are operated and maintained with:

- Airport operating revenues (rentals, fees, concessions, etc.) and
- County and/or city airport property tax to a maximum levy of 2 mills.

The Municipal Airport Act of the Revised Code of Montana (Article 1-809) states:

> "Every municipality is authorized out of any appropriations or other moneys made available for such purposes, to plan, establish, develop, construct, enlarge, improve, maintain, equip, operate, regulate, protect and police airports and air navigation facilities, either within or without the territorial limits of such municipality and within or without the territorial boundaries of this state, including the construction, installation, equipment, maintenance and operation at such airports of buildings and other facilities for the servicing of aircraft or for the comfort and accommodation of air travelers, and the purchase and sale of supplies, goods and commodities as an incident to the operation of its airport properties."

For this stated purpose, counties or cities are authorized to assess and levy each year a tax not to exceed two mills on the dollar of taxable value of the property (Article 1-804), but the statute does not allow accumulation of tax receipts for more than one year. In the past, local property taxes for airports with two mill maximum levy have been used largely for maintenance and operation of airports. Under the current procedure more than two-thirds of the airports out of the total of 89 owned by municipalities require more than a two mill tax to cover airport programs.

Due to the "no accumulation" clause, it is extremely difficult for any local government to accumulate enough funds for any lump-sum capital investment program, except for airport authorities which can accumulate funds up to $5 million, as allowed by the Municipal and Regional Airport Act of the State of Montana, Chapter 2, Section 900.

Individual airport analyses of financial feasibility contained in Appendix II, No. 3, confirms the conclusion that available funds from local governmental units and loans from the MSAD are not sufficient to meet the local share of the total costs of state system airport proejcts, and the operation and maintenance costs of the airports for the next 20 years.

To avoid the curtailment of airport development within the State of Montana during the next 20 years, legislative changes must be made and new sources of funds must be investigated which will be sufficient to provide adequate airport facilities.

The subject of property tax forecasts at the county and city levels is covered in the methodology section of this chapter.

Analyses and forecasts of airport operating revenues or deficits by individual airports and by development stages are also contained in the individual airport financial feasibility analyses in Appendix II, No. 3.

D. Financial Feasibility Analysis of State Government Revenues

A financial feasibility analysis was conducted which evaluated revenues from alternate sources. First, current state revenues from aviation fuel tax and other income were projected; new or expanded sources of funds were then added. These potential revenues were then compared to the costs necessary to meet projected airport requirements.

In this section only state level revenues are discussed. Local government revenues are analyzed in sub-section E.

Only summary results are shown in this section. Detailed individual airport financial feasibility evaluations are contained in Appendix II, No. 3.

1. Analysis and Forecasts of State Government Revenues from Existing and Alternative Sources of Funds

a. Existing Statutory Sources

The purpose of this section is to determine the net funds available to the state under existing revenue sources, after state owned airport project costs, operation and maintenance costs and other administrative costs of the MSAD are fully taken into account.

Shown in Table VI-12 are the forecasts of revenues under existing statutes and total costs to the state. Total costs include both the projected costs of state owned airports and net operating deficits (gross airport revenue less gross costs of airport operation and maintenance). Net administrative costs of MSAD are also included in the total. Forecasts of "other" income and aviation fuel tax are based on the historical trend and on forecasts of aircraft operations by airlines and general aviation.

Detailed forecast methodologies are presented in the methodology section of this chapter.

From Table VI-12, there is a surplus from state owned airport operations amounting to about $600,000 for the 1974 - 1977 period and $1,400,000 during the 1978 - 1982 period. This surplus is not sufficient to provide any effective state aid programs for the local financial needs, which amount

TABLE VI-12
ANALYSIS AND FORECASTS OF STATE FUNDS AVAILABLE FOR STATE AVIATION SYSTEM PROJECTS UNDER EXISTING FUND SOURCES
(in thousands of 1972 constant dollars)

PERIOD	1974-77	1978-82	1983-87	1988-92	1974-82	1983-92	1974-92
I. Total Costs of the MSAD*							
1. State-owned Airport Development Costs	361	27	276	282	388	558	946
2. Net Operational Costs of State-owned Airports	286	416	266	(21)**	702	245	947
3. Operating Deficit of the MSAD*	500	750	875	1,000	1,250	1,875	3,125
Total Costs	1,147	1,193	1,417	1,261	2,340	2,678	5,018
II. Existing Revenue Source							
1. Aviation Fuel Tax (1¢)	1,572	2,345	2,851	3,476	3,917	6,327	10,244
2. Other Income	210	272	287	309	482	596	1,078
Total State Income	1,782	2,617	3,138	3,785	4,399	6,923	11,322
III. State Funds Available (Excess or Deficit)	635	1,424	1,721	2,524	2,059	4,245	6,304

*MSAD - Montana State Aeronautics Division.
**Surplus

to approximately $26,000,000 for the next 9 year period. The state funds available for the 1974 - 1982 period are less than 8% of the local financial needs. In addition, the costs of enlarged MSAD staff would be substantial so as to reduce the estimated surplus significantly. It can be concluded that with the existing sources of funds, the state cannot finance other airports of the state system. In the following paragraphs, several new or improved sources of funds are investigated.

b. Alternative Sources

As part of the overall financing feasibility analysis, a search for new sources of funds was made in areas of aviation related revenues not utilized for airport development programs, and in existing revenue sources where tax bases or rates might be raised. Two major sources of funds identified as reasonable and feasible, other than state general funds, are:

1) aircraft personal property tax, and
2) aviation fuel tax

The aircraft personal property tax is currently levied at the local level and based on the taxable valuation of personal aircraft. Taxable valuations are 20% of assessed property valuations, which in turn are 66-2/3% of wholesale market values. The property tax on aircraft has been on the average about 180-200 mills per $1,000 of taxable valuation. It has been used as part of local government general funds for various functions of local governments.

The rationale for inclusion of an aircraft personal property tax in the state revenue is that first, based on user-benefit theory of economics, tax on aircraft should be used for promotion and improvement of airports and airways. Secondly, by centralizing registration procedures, the state can standardize the tax assessment and fully account for all the aircraft in the State of Montana, including those aircraft not normally accounted for (see Inventory - Chapter II). Central administration would not only reduce assessment procedures and administrative costs at the county level and thus generate economic benefits, but also would provide effective registration, and accurate statistical enumeration for a variety of policy purposes.

In addition, the one cent additional increase in the aviation fuel tax is an added source of funds for the state. Considering aviation fuel taxes in other states, two cents tax may not bring significant adverse effects on fuel sales, whereas more than two cents per gallon tax may do so. Aviation fuel taxes vary widely in other states, from none in 28 states, to more than 2¢ in 15 states and 2¢ or less in 7 states.

Table IV-13 shows cost-revenue analysis and forecasts after revenues from alternative sources are added.

As Table VI-13 shows, the total amount of state funds available with new sources of funds after deducting the total cost of the MSAD is about $7 million for the initial period 1974 - 1977, nearly $17 million for the period 1974 - 1982, and on a cumulative basis, a 20 year grand total of $44 million. These surplus funds can be utilized in the form of state aid to the municipalities whose financial needs for the local share of construction costs alone are expected to be $20.6 million, $5.4 million, $4.5 million and $3.4 million for each 5 year interval to 1992, or a total of $33.9 million for the entire period (see Table VI-3).

Analysis and forecasts of personal property taxes on aircraft to be used as an alternate source of funds are presented on an annual and cumulative basis in Table VI-14. Table VI-15 contains forecasts on the same basis of aviation fuel tax and other income. Fuel tax forecasts are shown, for sensitivity and comparative analysis purposes, for tax rates ranging from 1 to 4 cents per gallon.

If the personal property tax imposed on aircraft is taken from the counties and given to the state and the aviation

TABLE VI-13

ANALYSIS AND FORECAST OF STATE FUNDS AVAILABLE FOR STATE AVIATION SYSTEM PROJECTS WITH REVENUES FROM ALTERNATE FUND SOURCES

(in thousands of 1972 dollars)

PERIOD	1974-77	1978-82	1983-87	1988-92	1974-82	1983-92	1974-92
I. Total Costs of the MSAD	1,147	1,193	1,417	1,261	2,340	2,678	5,018
II. Alternate Revenue Sources							
1. Aviation Fuel Tax (2¢) 1/	3,144	4,690	5,702	6,952	7,834	12,654	20,488
2. Other Income	210	272	287	309	482	596	1,078
3. Personal Property Tax on Aircraft 2/	4,780	6,550	7,500	8,450	11,330	15,950	27,280
4. Total State Income	8,134	11,512	13,489	15,711	19,646	29,200	48,846
III. State Funds Available	6,987	10,319	12,072	14,450	17,306	26,522	43,828
IV. 50% of nonfederal funds required	10,122	2,722	2,114	1,569	12,844	3,683	16,527
V. Net difference (III-IV)	-3,135	+7,597	9,958	12,881	+4,462	22,839	27,301

1/ Source: Table VI-15
2/ Source: Table VI-14

TABLE VI-14
HISTORICAL AND PROJECTED AIRCRAFT PERSONAL PROPERTY TAX VALUATIONS AND TAX ESTIMATES

(in thousands of dollars)

Year	Tax Valuation	Tax Estimates*
1961	$2,954	$ 561
1962	2,998	570
1963	3,623	688
1964	3,880	737
1965	4,298	817
1966	4,293	816
1967	4,969	944
1968	5,801	1,102
1969	6,081	1,155
1970	5,757	1,094
1971	5,690	1,081
1972	5,685	1,080

Annual Forecasts

(in thousands of 1972 dollars)

Year	Tax Valuation	Tax Estimates*
1977	6,500**	1,235
1982	7,500	1,425
1987	8,500	1,615
1992	9,500	1,805

Cumulative Forecasts

(in thousands of 1972 dollars)

Year	Tax Valuation	Tax Estimates*
1974-77		4,780
1978-82		6,550
1982-87		7,500
1988-92		8,450

*Tax estimates are based on the average tax mill rate of 190.

**Historical trend is extrapolated in 1972 dollars.

Source: The Montana State Board of Equalization, State of Montana Biennial Report, various issues, 1958-1972.

TABLE VI-15
FORECASTS OF ANNUAL AND CUMULATIVE GAS TAX AND OTHER STATE INCOME
(in thousands of 1972 dollars)

Annual

Total Aviation Gas (Million Gal.)	Year	Other* Income	Gas Tax Revenues			
			1¢ Gal.	2¢ Gal.	3¢ Gal.	4¢ Gal.
34.1	1972	$ 50	$ 341	$ 682	$ 1,023	$ 1,256
47.6	1977	53	415	830	1,245	1,660
66.2	1982	56	505	1,010	1,515	2,020
92.0	1987	59	615	1,230	1,845	2,640
127.8	1992	63	748	1,496	2,244	2,992

Cumulative

1974-77	210	1,572	3,144	4,716	6,288
1978-82	272	2,345	4,690	7,035	9,380
1983-87	287	2,851	5,702	8,553	11,404
1988-92	309	3,476	6,952	10,428	13,904
1974-92	1,078	10,244	20,488	30,732	40,976

* A 1966-1972 period growth rate of 1.2% in 1972 dollars is assumed for the forecast periods. Other income excludes revenues from airport operations.

Source: Historical data provided by Montana Petroleum Association and Rocky Mountain Oil and Gas Association.

fuel tax is increased from one to two cents per gallon, the State can realize approximately $17 million in a ten yer period, beginning in 1974. To generate these new funds will require legislative action during the early part of 1974.

If these legislative changes are made, the revenues generated could be at the state's disposal to provide aid to municipalities by 1974. Total project costs of the airports in the system (other than state owned and Federally operated airports) were estimated to be $20 million during the initial period 1974 - 1977, and $26 million for the next 9 years (the 1974 - 1982 period). These data are shown in Tables VI-16 and VI-17.

The total funds available to the state would be $7 million and $10 million, respectively, for the 1974 - 1977 and 1978 - 1982 periods, for a 9 year total of about $17 million. The 9 years of state revenues utilizing the alternative sources of funds would comprise more than 67% of all project costs within the system.

After 1982, it is expected that the state will be in a sound financial position. The state can collect more than $12 million for the 1983 - 1987 period against total project costs of $4.2 million. A similar prospective is anticipated for the 1988 - 1992 period.

TABLE VI-16
COMPARATIVE ANALYSIS OF STATE FUNDS AVAILABLE AND TOTAL LOCAL FUNDS REQUIRED FOR STATE AIRPORT SYSTEM PROJECTS
(in thousands of 1972 dollars)

	1974-77	1978-82	1983-87	1988-92	1974-82	1983-92	1974-92
Total State Funds	6,987	10,319	12,072	14,450	17,306	26,522	43,828
Total Local Funds required*	20,243	5,444	4,228	3,138	25,687	7,366	33,053
The State Fund Less Local Project Costs	-13,256	4,875	7,844	11,312	-8,381	19,156	10,775
Total State Fund as % of Total Local Project Costs	34.5	189.5	285.5	460.5	67.4	360.1	132.6

*Excludes airports run by State or Federal government agencies.

Source: Table VI-3 and VI-9

It should be noted here, however, that the precision of the cost estimates which were based on demand forecasts as well as the corresponding facility requirements are subject to wider margins of error as time spans are extended. This is true also for revenue estimates. The state plan, therefore, should be reviewed a minimum of every five years.

It can be concluded that for the 9 year period 1974 - 1982, the state will be able to financially assist municipal airports in amounts to a total of $17 million.

2. Financing Alternatives

Two alternative solutions are recommended for state financing plans. Both would require legislative action as follows:

- Personal property tax on aircraft be transferred from local to state government, and used for airport development purposes.
- Statutory limits be removed to allow accumulation of airport tax revenues, at city, county and state levels.
- State participation of 50% of all local airport development costs.

a. Alternative 1

Under Alternative 1, it is recommended that the state finance fully 50% of all the non-Federal share of airport development project costs for all municipal airports. This will require an additional fund of $3.1 million for the period 1974 - 1977 from the state general fund.

b. Alternative 2

Alternative 2 takes effect if the additional fund of $3.1 million from the state general fund is not realized. In that instance, only $7 million will be available to meet the required amount of $10.1 million, which is 50% of the total non-Federal share of the airport development costs for the period 1974 - 1977.

Under Alternative 2, it is recommended that the state determine selectively the development projects on a priority basis by airport for 1974 - 1977 and allocate the available funds. After 1977, the state funds are adequate for 50% participation of development costs including postponed projects.

The criteria of a fund allocation system are described in detail in the implementation plan presented in Chapter VII, Section A2.

E. Financial Feasibility Analysis of Municipal Government Revenues

A financial feasibility analysis of every local airport in the Montana State System was conducted by examination of the fiscal capacity of municipalities. In addition to revenues to cover development costs for expansion and improvements, municipal airports require funds for operation and maintenance. To determine total financing need it was necessary to generate estimates of gross operating revenues, gross costs of operation and maintenance and estimates of project costs.

Although many counties have more than one county owned airport, a county was used as the basic unit. Every airport was identified as to ownership and grouped by county so that appropriate tax base and tax revenues could be applied.

Most municipal airports have been operating by deficit spending with the result that the airprot property tax of two mills has been used mainly for maintaining the airport, or for minor expansion programs. Since the imposed mill levy has been based on needs within the statutory constraint, it has fluctuated year by year and airport by airport, and has no consistent pattern.

Past funding procedures indicate that only real property tax revenues have been used to meet the financial obligations of the county and city airports. Therefore, this was assumed to be the source of future funds.

When a city owned airport operates within a county, analysis of county fiscal capacity deals with county property tax revenues minus city property tax revenues. According to the Montana Tax Payers Association's Montana Property Tax Mill Levies, city properties have been taxed twice for the purpose of airport operation and expansion. Airport financial feasibility evaluations were conducted, therefore, without duplicating tax levies at city and county levels.

In this section revenue analysis and forecasts are presented for the counties first and the cities second. Then, operating airport revenue and cost forecasts are provided. Detailed forecast methodologies and the assumptions underlying the forecasts are provided in Section VI-F, which follows.

1. County Airport Mill Levies

County airport mill levies have varied historically county by county and airport by airport, reflecting differences in the level of expenditures. As Table VI-17 shows, 1970 mill levies are not uniform. For instance, airport mill levies accounted for 6% of the total county property tax (excluding school tax) in Missoula while for most of the counties mill levies registered less than 2%. No consistent pattern in tax levies could be found. For some counties with county owned and operated airports, airport mill levies are not shown because airports are supported from general purpose tax revenues.

For the overall purpose of financial feasibility and sensitivity analysis, Tables VI-18, VI-19 and VI-20, respectively, show forecasts of two, three and four mill levies, accumulated in 1977, 1982, 1987 and 1992. For analytic purposes the seven counties having no county operated airports are also included in the tabulation. Table VI-18, which shows the current maximum allowable two mill airport levy, is utilized in subsequent analyses of financial feasibility for each airport.

TABLE VI-17 - CONTINUED -
AIRPORT AND TOTAL PROPERTY MILL RATES AND ONE MILL TAX REVENUES BY COUNTY, 1970

		AIRPORT MILL	TOTAL MILL	1 MILL VALUE
31	MINERAL	0.00	55.26	3437.00
32	MISSOULA	1.98	33.12	49628.00
33	MUSSELSHELL	0.00	31.68	7481.00
34	PARK	0.70	39.32	13059.00
35	PETROLEUM	0.00	31.50	1942.00
36	PHILLIPS	0.00	44.51	9952.00
37	PONDERA	0.40	49.74	12934.00
38	POWDER RIVER	0.00	31.00	7667.00
39	POWELL	0.00	38.35	9006.00
40	PRAIRIE	0.00	47.32	4339.00
41	RAVALLI	1.00	36.36	11540.00
42	RICHLAND	0.00	42.48	13944.00
43	ROOSEVELT	0.00	38.95	15969.00
44	ROSE BUD	0.11	49.86	10557.00
45	SANDERS	0.00	38.84	13559.00
46	SHERIDAN	0.00	33.15	12306.00
47	SILVER BOW	1.00	61.98	37576.00
48	STILLWATER	0.63	39.79	8300.00
49	SWEET GRASS	0.00	43.20	5934.00
50	TETON	0.84	44.68	12763.00
51	TOOLE	0.30	39.20	16039.00
52	TREASURE	0.00	32.56	2441.00
53	VALLEY	0.00	44.80	16338.00
54	WHEATLAND	0.38	45.37	4572.00
55	WIBAUX	0.00	30.52	7780.00
56	YELLOWSTONE	0.00	27.32	96383.01

TABLE VI-17
AIRPORT AND TOTAL PROPERTY MILL RATES AND ONE MILL TAX REVENUES BY COUNTY, 1970

		AIRPORT MILL	TOTAL MILL	1 MILL VALUE
1	BEAVERHFAD	0.25	41.55	12291.00
2	BIG HORN	0.00	23.91	13057.00
3	BLAINE	0.99	54.03	9162.00
4	BROADWATER	0.00	40.64	4994.00
5	CARBON	0.60	30.35	16527.00
6	CARTER	0.30	48.35	4780.00
7	CASCADE	0.00	48.39	75278.01
8	CHOUTEAU	1.94	39.16	17591.00
9	CUSTER	1.00	41.99	13176.00
10	DANIEFS	0.50	44.55	5188.00
11	DAWSON	0.00	38.90	16154.00
12	DEER LODGE	1.00	50.00	14171.00
13	FALLON	0.00	24.65	18239.00
14	FERGUS	0.00	39.75	18456.00
15	FLATHEAD	0.51	26.93	41846.00
16	GALLATIN	0.25	39.10	27373.00
17	GARFIELD	0.50	43.00	4889.00
18	GLACIER	0.94	36.16	17533.00
19	GOLDEN VALLEY	0.00	39.40	3015.00
20	GRANITE	0.82	37.07	5409.00
21	HILL	0.77	46.74	19077.00
22	JEFFERSON	0.00	29.84	6735.00
23	JUDITH BASIN	0.00	37.77	8118.00
24	LAKE	0.67	47.92	16028.00
25	LEWIS ANL CLARK	0.44	40.08	33140.00
26	LIBERTY	0.50	40.45	7282.00
27	LINCOLN	0.00	25.69	16140.00
28	MC CONE	0.00	39.94	8667.00
29	MADISON	0.00	35.75	8133.00
30	MEAGHER	0.00	43.72	4561.00

TABLE VI-18

FORECAST OF 2-MILL AIRPORT LEVY BY COUNTY IN THOUSANDS OF 1972 DOLLARS

COUNTY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92-TOT	GRAND TOT
BEAVERHEAD	30.5	31.6	32.8	34.0	129.0	178.1	194.4	215.0	716.6
BIG HORN	30.9	31.9	33.0	34.1	130.2	178.6	195.0	216.0	719.9
BLAINE	20.8	21.2	21.6	22.0	85.9	110.1	111.4	113.8	421.3
BROADWATER	10.6	10.9	11.2	11.5	44.5	57.1	57.7	58.8	218.4
CARBON	33.7	34.7	35.7	36.8	141.0	184.4	186.1	189.6	701.3
CARTER	12.2	12.2	12.3	12.3	49.2	61.3	61.8	62.9	235.4
CASCADE	183.2	193.5	204.3	215.7	796.8	1139.0	1249.2	1383.5	4568.7
CHOUTEAU	42.6	41.6	40.7	39.7	164.9	199.1	200.9	204.5	769.5
CUSTER	30.6	31.2	31.8	32.4	126.2	165.8	178.2	197.6	667.9
DANIELS	11.8	12.0	12.3	12.5	48.7	62.2	62.9	64.1	238.0
DAWSON	34.6	35.4	36.2	37.0	143.4	185.7	187.9	191.9	709.0
DEER LODGE	34.8	35.1	35.5	35.8	141.3	179.9	182.6	186.9	690.9
FALLON	41.0	42.2	43.5	44.8	171.8	235.9	257.4	281.7	946.9
FERGUS	42.5	42.7	43.0	43.3	171.8	217.5	220.0	230.0	839.3
FLATHEAD	102.2	105.7	109.4	113.2	430.7	597.1	654.6	724.4	2407.0
GALLATIN	69.4	71.1	72.9	74.7	288.3	394.3	433.0	479.7	1595.5
GARFIELD	11.5	11.6	11.7	11.9	46.9	58.9	59.4	60.4	225.8
GLACIER	46.1	46.0	45.9	45.8	184.1	233.9	251.7	278.6	948.6
GOLDEN VALLEY	7.2	7.3	7.4	7.6	29.7	37.4	37.7	38.3	143.2
GRANITE	11.0	11.3	11.6	11.9	46.0	58.9	60.8	65.6	231.5
HILL	45.1	47.4	49.8	52.2	194.7	267.9	287.7	317.6	1068.0
JEFFERSON	18.1	18.7	19.3	19.9	76.1	103.6	112.8	125.0	417.7
JUDITH BASIN	18.5	18.8	19.1	19.4	75.9	96.7	97.5	99.2	369.5
LAKE	39.3	40.3	41.4	42.4	163.6	223.5	244.9	270.5	902.6
LEWIS & CLARK	80.4	83.1	85.9	88.7	338.4	467.9	513.0	568.5	1887.9
LIBERTY	15.3	15.6	15.9	16.3	63.3	83.0	89.1	97.6	333.2
LINCOLN	36.9	38.3	39.7	41.2	156.4	217.3	238.7	264.6	877.1
MADISON	20.8	20.9	20.9	21.0	83.8	107.5	115.4	126.3	433.1
MC CONE	14.1	14.6	15.1	15.6	59.5	79.3	84.4	93.1	316.4
MEAGHER	10.7	11.2	11.6	12.1	45.8	61.6	66.2	72.6	246.4
MINERAL	7.8	8.0	8.3	8.5	32.8	43.0	46.7	51.2	173.8
MISSOULA	121.5	123.7	126.0	128.4	499.8	678.0	744.9	826.6	2749.5
MUSSELSHELL	15.5	15.7	15.9	16.1	63.4	80.4	81.2	82.8	307.9
PARK	29.1	29.6	30.0	30.4	119.3	152.7	154.7	158.2	585.2
PETROLEUM	4.8	4.9	5.0	5.1	20.0	24.7	24.9	25.4	95.1
PHILLIPS	22.4	22.8	23.2	23.6	92.2	117.8	119.1	121.4	450.6
PONDERA	31.6	31.8	32.0	32.2	127.8	161.1	162.7	165.8	617.6
POWDER RIVER	32.2	31.6	31.1	30.5	125.5	161.2	176.9	194.6	658.4
POWELL	17.9	18.4	18.8	19.2	74.5	97.9	105.6	116.9	395.1
PRAIRIE	10.1	10.3	10.4	10.6	41.6	52.7	53.2	54.2	201.8
RAVALLI	30.2	30.4	30.6	30.9	122.2	162.7	178.7	198.0	661.9
RICHLAND	39.5	39.8	40.2	40.6	160.3	207.4	222.2	246.2	836.3
ROOSEVELT	34.6	35.6	36.7	37.7	144.8	192.5	206.7	229.0	773.2
ROSEBUD	37.8	38.6	39.5	40.4	156.5	206.5	221.1	244.4	828.6
SANDERS	30.3	31.6	33.0	34.4	129.6	180.2	196.6	217.5	724.0
SHERIDAN	24.7	25.1	25.5	25.9	101.3	129.6	130.9	133.4	495.4
SILVER BOW	96.5	101.7	107.1	112.9	418.3	568.4	575.9	588.8	2151.5
STILLWATER	19.2	19.6	20.1	20.6	79.7	102.8	103.8	105.8	392.2
SWEET GRASS	13.7	13.9	14.2	14.4	56.4	71.7	72.4	73.8	274.4
TETON	28.5	28.9	29.3	29.7	116.7	148.9	150.4	153.2	569.4
TOOLE	33.3	33.8	34.3	34.9	136.5	174.6	176.2	179.4	667.0
TREASURE	5.4	5.6	5.8	5.9	22.9	29.0	29.3	29.8	111.2
VALLEY	35.5	35.9	36.4	36.9	145.0	185.4	187.7	191.6	709.8
WHEATLAND	10.2	10.4	10.6	10.9	42.3	54.0	54.6	55.7	206.7
WIBAUX	17.9	19.2	20.5	21.8	79.6	108.9	109.7	111.4	409.7
YELLOWSTONE	231.9	237.9	244.1	250.4	964.5	1322.1	1448.6	1603.9	5339.3

TABLE VI-19

FORECAST OF 3-MILL AIRPORT LEVY BY COUNTY IN THOUSANDS OF 1972 DOLLARS

COUNTY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92-TOT	GRAND TOT
BEAVERHEAD	45.7	47.3	49.1	50.9	193.2	267.1	291.7	322.5	1074.6
BIG HORN	46.3	47.9	49.5	51.1	195.1	267.9	292.5	323.9	1079.5
BLAINE	31.3	31.8	32.4	32.9	128.6	165.2	167.1	170.6	631.7
BROADWATER	16.0	16.4	16.8	17.2	66.5	85.7	86.6	88.2	327.2
CARBON	50.5	52.0	53.5	55.1	211.3	276.5	279.2	284.4	1051.6
CARTER	18.3	18.3	18.4	18.4	73.6	91.9	92.7	94.4	352.7
CASCADE	274.8	290.2	306.4	323.5	1195.0	1708.5	1873.8	2075.3	6852.7
CHOUTEAU	63.9	62.4	61.0	59.5	247.0	298.6	301.3	306.7	1153.9
CUSTER	45.9	46.8	47.6	48.5	189.1	248.6	267.3	296.5	1001.6
DANIELS	17.7	18.0	18.3	18.7	72.9	93.3	94.3	96.2	356.7
DAWSON	51.9	53.1	54.2	55.4	214.9	278.6	281.9	287.8	1063.2
DEER LODGE	52.2	52.6	53.1	53.6	211.7	269.9	273.9	280.3	1036.0
FALLON	61.5	63.3	65.2	67.1	257.4	353.8	386.1	422.6	1420.0
FERGUS	63.7	64.1	64.5	64.9	257.4	326.3	330.1	0.0	913.9
FLATHEAD	153.3	158.6	164.0	169.7	645.8	895.7	981.8	1086.6	3610.2
GALLATIN	104.1	106.7	109.3	111.9	432.1	591.5	649.5	719.6	2392.9
GARFIELD	17.3	17.4	17.6	17.7	70.2	88.3	89.1	90.7	338.3
GLACIER	69.2	69.0	68.9	68.7	275.9	350.9	377.6	417.9	1422.5
GOLDEN VALLEY	10.8	10.9	11.1	11.3	44.3	56.0	56.5	57.5	214.4
GRANITE	16.5	16.9	17.3	17.7	68.7	88.4	91.3	98.4	346.9
HILL	67.7	71.0	74.6	78.3	291.8	401.9	431.5	476.4	1601.7
JEFFERSON	27.1	28.0	28.9	29.8	113.9	155.4	169.2	187.6	626.2
JUDITH BASIN	27.7	28.1	28.6	29.0	113.6	145.0	146.3	148.8	553.9
LAKE	58.9	60.4	62.0	63.6	245.1	335.3	367.3	405.8	1353.6
LEWIS & CLARK	120.6	124.6	128.8	133.0	507.3	701.9	769.5	852.8	2831.5
LIBERTY	23.0	23.4	23.8	24.3	94.7	124.5	133.7	146.5	499.5
LINCOLN	55.4	57.4	59.6	61.8	234.4	325.9	358.0	396.9	1315.3
MADISON	31.2	31.3	31.4	31.4	125.5	161.2	173.0	189.4	649.3
MC CONE	21.1	21.8	22.6	23.3	89.0	119.0	126.6	139.6	474.3
MEAGHER	16.1	16.7	17.4	18.1	68.5	92.4	99.3	108.9	369.2
MINERAL	11.7	12.0	12.3	12.7	48.9	64.5	70.0	76.8	260.3
MISSOULA	182.2	185.6	189.0	192.5	749.4	1017.0	1117.4	1239.8	4123.9
MUSSELSHELL	23.2	23.5	23.8	24.1	94.9	120.5	121.8	124.2	461.5
PARK	43.7	44.3	44.9	45.6	178.8	229.1	232.1	237.3	877.4
PETROLEUM	7.3	7.4	7.4	7.5	29.8	37.1	37.4	38.0	142.4
PHILLIPS	33.6	34.2	34.7	35.3	138.0	176.8	178.6	182.1	675.6
PONDERA	47.5	47.7	47.9	48.2	191.5	241.7	244.1	248.7	926.0
POWDER RIVER	48.2	47.4	46.5	45.7	188.1	241.8	265.4	291.9	987.3
POWELL	26.9	27.5	28.1	28.8	111.5	146.8	158.4	175.4	592.3
PRAIRIE	15.1	15.4	15.6	15.9	62.1	79.1	79.8	81.2	302.4
RAVALLI	45.2	45.6	45.9	46.2	183.1	244.0	268.1	297.1	992.5
RICHLAND	59.2	59.7	60.3	60.8	240.2	311.2	333.2	369.3	1254.1
ROOSEVELT	51.9	53.4	54.9	56.5	217.0	288.8	310.1	343.5	1159.5
ROSEBUD	56.7	57.9	59.2	60.5	234.5	309.7	331.7	366.6	1242.6
SANDERS	45.5	47.4	49.4	51.5	194.1	270.3	294.9	326.2	1085.7
SHERIDAN	37.0	37.6	38.2	38.8	151.7	194.4	196.4	200.1	742.8
SILVER BOW	144.7	152.5	160.6	169.2	627.2	852.6	863.9	883.1	3227.0
STILLWATER	28.8	29.4	30.1	30.8	119.3	154.1	155.7	158.7	588.0
SWEET GRASS	20.6	20.9	21.2	21.5	84.4	107.5	108.6	110.7	411.3
TETON	42.8	43.3	43.9	44.5	174.8	223.4	225.6	229.8	853.7
TOOLE	50.0	50.7	51.5	52.2	204.6	262.0	264.3	269.1	1000.1
TREASURE	8.1	8.4	8.6	8.8	34.1	43.5	43.9	44.8	166.4
VALLEY	53.2	53.9	54.6	55.3	217.2	278.1	281.5	287.4	1064.4
WHEATLAND	15.2	15.6	15.9	16.3	63.2	81.1	81.9	83.5	309.8
WIBAUX	26.9	28.7	30.6	32.7	119.1	163.3	164.5	167.1	614.2
YELLOWSTONE	347.3	356.8	366.1	375.5	1446.5	1983.1	2173.0	2405.9	8008.6

TABLE VI-20

FORECAST OF 4-MILL AIRPORT LEVY BY COUNTY IN THOUSANDS OF 1972 DOLLARS

COUNTY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92-TOT	GRAND TOT
BEAVERHEAD	60.9	63.1	65.4	67.8	257.4	356.2	388.9	429.9	1432.6
BIG HORN	61.8	63.8	65.9	68.1	259.9	357.2	390.0	431.9	1439.2
BLAINE	41.7	42.4	43.1	43.9	171.3	220.2	222.8	227.5	842.0
BROADWATER	21.3	21.8	22.3	22.9	88.5	114.3	115.5	117.7	436.0
CARBON	67.3	69.3	71.3	73.4	281.6	368.7	372.3	379.2	1401.9
CARTER	24.4	24.4	24.5	24.5	98.0	122.5	123.6	125.8	470.1
CASCADE	366.4	386.9	408.4	431.2	1593.1	2277.9	2498.4	2767.1	9136.7
CHOUTEAU	85.3	83.2	81.2	79.3	329.2	398.2	401.8	409.0	1538.3
CUSTER	61.3	62.4	63.5	64.6	251.9	331.5	356.4	395.3	1335.2
DANIELS	23.5	24.0	24.4	24.9	97.0	124.4	125.7	128.2	475.4
DAWSON	69.2	70.7	72.3	73.9	286.3	371.4	375.8	383.7	1417.4
DEER LODGE	69.5	70.2	70.8	71.4	282.2	359.9	365.1	373.8	1381.1
FALLON	82.1	84.4	86.9	89.4	343.0	471.8	514.8	563.4	1893.1
FERGUS	84.9	85.4	86.0	86.5	343.0	435.0	440.1	460.0	1678.1
FLATHEAD	204.4	211.4	218.7	226.2	860.9	1194.3	1309.1	1448.9	4813.3
GALLATIN	138.8	142.2	145.6	149.2	576.0	788.6	866.1	959.4	3190.3
GARFIELD	23.0	23.2	23.4	23.6	93.4	117.7	118.8	120.9	450.9
GLACIER	92.2	92.0	91.8	91.5	367.8	467.8	503.5	557.3	1896.5
GOLDEN VALLEY	14.3	14.6	14.8	15.0	58.9	74.7	75.3	76.6	285.7
GRANITE	22.1	22.5	23.0	23.6	91.4	117.8	121.7	131.2	462.3
HILL	90.2	94.7	99.4	104.3	388.8	535.9	575.4	635.2	2135.4
JEFFERSON	36.1	37.3	38.4	39.7	151.7	207.2	225.6	250.1	834.7
JUDITH BASIN	37.0	37.5	38.1	38.6	151.3	193.4	195.0	198.4	738.3
LAKE	78.6	80.6	82.6	84.7	326.6	447.0	489.7	541.1	1804.6
LEWIS & CLARK	160.8	166.2	171.7	177.3	676.2	935.8	1026.0	1137.1	3775.2
LIBERTY	30.6	31.2	31.8	32.4	126.1	166.0	178.3	195.3	665.8
LINCOLN	73.9	76.6	79.4	82.3	312.3	434.5	477.4	529.2	1753.6
MADISON	41.6	41.7	41.8	41.8	167.2	215.0	230.7	252.6	865.6
MC CONE	28.1	29.1	30.0	31.0	118.5	158.6	168.7	186.2	632.1
MEAGHER	21.5	22.3	23.2	24.0	91.2	123.2	132.4	145.2	492.1
MINERAL	15.5	16.0	16.4	16.9	65.0	86.0	93.3	102.4	346.9
MISSOULA	243.0	247.4	251.9	256.6	999.1	1356.0	1489.9	1653.1	5498.3
MUSSELSHELL	31.0	31.4	31.7	32.1	126.3	160.7	162.4	165.5	615.1
PARK	58.3	59.1	59.9	60.7	238.2	305.5	309.5	316.4	1169.6
PETROLEUM	9.7	9.8	9.9	10.0	39.5	49.4	49.8	50.7	189.6
PHILLIPS	44.9	45.6	46.3	47.0	183.8	235.7	238.1	242.7	900.5
PONDERA	63.3	63.6	63.9	64.2	255.1	322.2	325.4	331.6	1234.5
POWDER RIVER	64.3	63.2	62.0	60.9	250.6	322.5	353.8	389.2	1316.2
POWELL	35.9	36.7	37.5	38.3	148.5	195.8	211.2	233.9	789.5
PRAIRIE	20.1	20.5	20.8	21.1	82.7	105.4	106.4	108.3	402.9
RAVALLI	60.3	60.7	61.2	61.6	244.0	325.4	357.5	396.1	1323.1
RICHLAND	78.9	79.6	80.3	81.1	320.1	414.9	444.3	492.4	1671.9
ROOSEVELT	69.3	71.2	73.2	75.3	289.2	385.0	413.5	458.0	1545.8
ROSEBUD	75.5	77.2	78.9	80.7	312.5	412.9	442.2	488.8	1656.6
SANDERS	60.7	63.2	65.9	68.6	258.7	360.4	393.2	435.0	1447.3
SHERIDAN	49.4	50.1	50.9	51.6	202.2	259.1	261.8	266.8	990.1
SILVER BOW	193.0	203.3	214.1	225.6	836.1	1136.7	1151.9	1177.5	4302.4
STILLWATER	38.4	39.2	40.1	41.0	158.8	205.5	207.6	211.6	783.8
SWEET GRASS	27.5	27.8	28.2	28.6	112.4	143.4	144.8	147.5	548.2
TETON	57.0	57.8	58.5	59.3	232.8	297.8	300.8	306.4	1138.0
TOOLE	66.6	67.6	68.6	69.6	272.6	349.3	352.5	358.8	1333.3
TREASURE	10.8	11.1	11.4	11.7	45.2	58.0	58.6	59.7	221.7
VALLEY	70.9	71.8	72.8	73.7	289.5	370.8	375.3	383.2	1419.0
WHEATLAND	20.3	20.7	21.2	21.6	84.1	108.1	109.2	111.3	412.8
WIBAUX	35.9	38.3	40.8	43.5	158.6	217.8	219.3	222.8	818.7
YELLOWSTONE	463.8	475.8	488.1	500.7	1928.5	2644.1	2897.3	3207.9	10677.9

2. City Airport Mill Levies

Airport mill levies on city taxable valuations were analyzed in the same manner as those for counties. Actual airport mill levies compared with total city-town mill levies are presented for 1969 in Table VI-21 and for 1972 in Table VI-22.

According to these tables, 36 municipal governments out of 57 levied airport mill taxes in 1969 and 1972. Total airport mill taxes were $272,000 in 1969 and $208,000 in 1972. According to the Montana Taxpayers Association, some cities included airport taxes in the general purpose tax category and, therefore, airport tax revenues were not included in the above tables. The highest airport mill taxes as a percent of the total property mill (excluding property tax for schools) was 5% in Circle in 1969 and 3.96% in White Sulphur Spring and Yellowstone in 1972.

The largest amounts were $103,000 in Great Falls in 1972 and $105,000 in Billings in 1969. In 1969, Billings and Great Falls accounted for 74% of the total airport mill levies.

As part of the sensitivity analysis, as in the county airport mill levy analysis, each city was evaluated. Airport mill levies varied between two and four mills on projected property valuation. The annual and cumulative forecasts of airport mill levies on taxable valuations for the Montana municipalities are shown, respectively, in Tables VI-23, VI-24 and VI-25.

TABLE VI-21

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1969-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MILL
1	ALBERTON	64.00	0.00	146.00
2	ANACONDA	76.60	0.10	4994.00
3	BAINVILLE	35.00	0.00	124.00
4	BAKER	48.00	2.00	1692.00
5	BEARCREEK	52.00	0.00	20.00
6	BELGRADE	43.00	0.00	559.00
7	BELT	76.00	0.00	358.00
8	BIG SANDY	44.00	0.40	561.00
9	BIG TIMBER	42.00	0.60	1291.00
10	BILLINGS	55.00	2.00	52315.00
11	BOULDER	65.00	0.00	352.00
12	BOZEMAN	52.50	0.00	10383.00
13	BRIDGER	53.00	1.00	487.00
14	BROADUS	47.00	0.00	618.00
15	BROADVIEW	45.00	0.00	86.00
16	BROCKTON	77.00	0.00	68.00
17	BROWNING	53.50	0.00	570.00
18	BUTTE	53.39	0.00	16700.00
19	CASCADE	49.00	0.00	352.00
20	CHESTER	54.00	0.00	755.00
21	CHINOOK	49.50	0.00	1305.00
22	CHOTEAU	39.70	0.50	1414.00
23	CIRCLE	40.00	2.00	689.00
24	CYDE PARK	50.00	0.00	77.00
25	COLUMBIA FALLS	48.50	0.00	1942.00
26	COLUMBUS	48.10	0.00	957.00
27	CONRAD	44.25	0.00	2695.00
28	CULBERTSON	34.50	0.00	580.00
29	CUT BANK	46.15	1.00	2988.00
30	DARBY	78.50	0.00	169.00
31	DEER LODGE	43.50	1.00	1860.00
32	DENTON	35.00	0.00	376.00
33	DILLION	37.00	0.00	2934.00
34	DODSON	67.00	0.00	108.00
35	DRUMMOND	45.20	0.00	305.00
36	DUTTON	60.00	0.00	352.00
37	EAST HELENA	40.00	0.00	1710.00
38	EKALAKA	40.00	0.00	352.00
39	ENNIS	71.00	0.00	355.00
40	EUREKA	50.00	0.00	499.00
41	FAIRFIELD	57.00	0.00	564.00
42	FAIRVIEW	57.00	0.00	483.00
43	FLAXVILLE	67.00	0.00	111.00
44	FORSYTH	43.00	0.00	1297.00
45	FORT BENTON	49.00	0.00	1377.00
46	FROID	71.00	0.00	229.00
47	FROMBERG	65.00	0.00	205.00
48	GERALDINE	74.50	0.50	253.00
49	GLASGOW	48.81	1.51	4462.00
50	GLENDIVE	55.80	0.00	5016.00

TABLE VI-21 - CONTINUED -

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1969-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MILL
51	GRASS RANGE	22.00	0.00	68.00
52	GREAT FALLS	60.92	2.00	47824.00
53	HAMILTON	48.60	0.10	2047.00
54	HARDIN	42.49	0.00	2246.00
55	HARLEM	57.00	0.00	550.00
56	HARLOWTON	48.00	0.50	973.00
57	HAVRE	51.26	0.56	7087.00
58	HELENA	56.69	0.00	18224.00
59	HINGHAM	25.00	0.00	137.00
60	HOBSON	25.00	0.00	164.00
61	JUDITH GAP	30.00	0.00	58.00
62	KALISPELL	47.57	0.00	9508.00
63	KEVIN	52.00	0.00	327.00
64	LAUREL	66.00	1.50	2329.00
65	LAVINA	55.00	0.00	115.00
66	LEWISTOWN	53.11	1.96	5356.00
67	LIBBY	44.62	0.00	2395.00
68	LIMA	27.50	0.00	148.00
69	LIVINGSTON	53.26	0.71	5539.00
70	LODGE GRASS	55.00	0.00	203.00
71	MALTA	50.00	2.00	1749.00
72	MANHATTAN	58.00	0.00	470.00
73	MEDICINE LAKE	62.50	1.00	197.00
74	MELSTONE	41.00	0.00	113.00
75	MILES CITY	47.83	1.00	6420.00
76	MISSOULA	56.76	0.00	23063.00
77	MOORE	48.00	0.00	119.00
78	NASHAUA	60.00	0.50	332.00
79	NEINHART	24.50	0.00	73.00
80	OPHEIM	40.00	1.00	219.00
81	OUTLOOK	22.00	0.00	77.00
82	PHILLIPSBURG	71.50	0.00	563.00
83	PLAINS	60.50	0.00	690.00
84	PLENTYWOOD	50.50	1.50	1318.00
85	PLEVNA	86.00	0.00	96.00
86	OPLSON	44.50	2.00	1689.00
87	POPLAR	51.50	2.00	734.00
88	REXFORD	0.00	0.00	0.00
89	RED LODGE	52.00	0.70	1337.00
90	RICHEY	57.00	0.00	253.00
91	RONAN	57.00	1.00	793.00
92	ROUNDUP	46.50	0.70	1201.00
93	RYEGATE	32.00	0.00	161.00
94	SACO	76.00	0.00	229.00
95	SCOBEY	51.67	1.00	1014.00
96	SHELBY	50.50	0.00	2397.00
97	SHERIDAN	36.00	0.00	398.00
98	SIDNEY	44.25	1.00	3277.00
99	STANFORD	46.00	0.00	447.00
100	STEVENSVILLE	66.50	0.00	455.00

TABLE VI-21 - CONTINUED -

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1969-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MILL
101	ST. IGNATIUS	45.50	1.00	283.00
102	SUNBURST	56.00	0.00	311.00
103	SUPERIOR	67.91 .	0.00	560.00
104	TERRY	43.40	0.00	690.00
105	THOMPSON FALLS	40.91	0.00	758.00
106	THREE FORKS	50.00	1.00	678.00
107	TOWNSEND	75.00	0.00	758.00
108	TROY	37.00	0.00	354.00
109	TWIN BRIDGES	64.00	1.00	266.00
110	VALIER	44.50	0.00	541.00
111	VIRGINIA CITY	37.00	0.00	94.00
112	WALKERVILLE	44.00	0.00	496.00
113	WESTBY	87.00	0.00	104.00
114	WEST YELLOWSTONE	41.00	0.00	1046.00
115	WHITEFISH	56.00	0.00	2103.00
116	WHITEHALL	42.50	0.00	570.00
117	WHITE SULPHUR SPRG	48.00	0.00	725.00
118	WIBAUX	39.00	0.00	487.00
119	WINIFRED	18.00	0.00	102.00
120	WINNETT	42.00	0.00	128.00
121	WOLF POINT	50.50	2.50	2117.00

TABLE VI-22

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1972-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MILL
1	ALBERTON	69.00	0.00	611.00
2	ANACONDA	83.50	0.10	5496.00
3	BAINVILLE	45.00	0.00	128.00
4	BAKER	57.00	0.00	1829.00
5	BEARCREEK	58.00	0.00	23.00
6	BELGRADE	50.00	0.00	738.00
7	BELT	76.00	0.00	366.00
8	BIG SANDY	37.00	0.40	666.00
9	BIG TIMBER	38.90	0.40	1510.00
10	BILLINGS	69.70	0.00	60142.00
11	BOULDER	68.00	0.00	532.00
12	BOZEMAN	62.00	1.00	12800.00
13	BRIDGER	67.00	0.00	489.00
14	BROADUS	75.50	0.00	646.00
15	BROADVIEW	50.00	0.00	94.00
16	BROCKTON	77.00	0.00	35.00
17	BROWNING	48.50	0.00	704.00
18	BUTTE	65.00	2.00	17342.00
19	CASCADE	54.00	0.00	380.00
20	CHESTER	67.00	0.00	875.00
21	CHINOOK	55.00	0.50	1380.00
22	CHOTEAU	42.00	0.00	1484.00
23	CIRCLE	42.00	0.00	756.00
24	CYDE PARK	50.00	0.00	95.00
25	COLUMBIA FALLS	61.75	0.00	2259.00
26	COLUMBUS	51.10	0.00	1070.00
27	CONRAD	49.00	0.00	13446.00
28	CULBERTSON	39.90	1.00	619.00
29	CUT BANK	47.00	0.00	3156.00
30	DARBY	83.50	0.00	225.00
31	DEER LODGE	49.70	0.00	1903.00
32	DENTON	53.00	0.00	423.00
33	DILLION	40.50	0.00	3256.00
34	DODSON	67.00	0.00	102.00
35	DRUMMOND	50.70	0.00	313.00
36	DUTTON	57.00	0.00	373.00
37	EAST HELENA	46.20	0.00	2064.00
38	EKALAKA	60.00	0.00	368.00
39	ENNIS	67.00	0.00	426.00
40	EUREKA	49.00	0.00	562.00
41	FAIRFIELD	60.00	0.00	629.00
42	FAIRVIEW	60.00	0.00	496.00
43	FLAXVILLE	62.00	0.00	109.00
44	FORSYTH	48.00	0.00	1593.00
45	FORT BENTON	53.00	0.00	1659.00
46	FROID	47.00	0.00	265.00
47	FROMBERG	65.00	0.00	223.00
48	GERALDINE	75.00	0.50	317.00
49	GLASGOW	58.13	0.67	4658.00
50	GLENDIVE	63.90	0.00	5300.00

TABLE VI-22 - CONTINUED -

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1972-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MIL
51	GRASS RANGE	36.00	0.00	70.00
52	GREAT FALLS	74.92	2.00	51746.00
53	HAMILTON	65.10	0.20	2451.00
54	HARDIN	51.12	0.00	2485.00
55	HARLEM	65.00	0.00	593.00
56	HARLOWTON	53.00	0.00	975.00
57	HAVRE	80.33	0.00	7691.00
58	HELENA	70.70	0.00	20631.00
59	HINGHAM	25.00	0.00	130.00
60	HINSDALE	22.00	0.00	0.00
61	HOBSON	30.00	0.00	137.00
62	HOT SPRINGS	39.00	0.00	353.00
63	HYSHAM	97.10	0.00	308.00
64	ISMAY	13.00	0.00	26.00
65	JOLIET	73.00	0.00	234.00
66	JORDAN	41.00	0.00	375.00
67	JUDITH GAP	30.00	0.00	62.00
68	KALISPELL	57.28	0.00	10397.00
69	KEVIN	60.00	0.00	384.00
70	LAUREL	73.00	2.00	2632.00
71	LAVINA	44.00	0.00	107.00
72	LEWISTOWN	68.20	0.00	5721.00
73	LIBBY	66.10	0.00	2803.00
74	LIMA	30.00	0.00	154.00
75	LIVINGSTON	62.32	1.80	5764.00
76	LODGE GRASS	60.00	0.00	220.00
77	MALTA	61.82	0.47	1818.00
78	MANHATTAN	68.50	0.00	586.00
79	MEDICINE LAKE	100.00	1.00	194.00
80	MELSTONE	60.00	0.00	121.00
81	MILES CITY	65.86	2.00	7159.00
82	MISSOULA	64.66	0.00	26534.00
83	MOORE	33.00	0.00	168.00
84	NASHAUA	59.60	0.50	321.00
85	NEINHART	24.50	0.00	80.00
86	OPHEIM	60.00	0.00	162.00
87	OUTLOOK	25.00	0.00	77.00
88	PHILIPSBURG	69.00	0.00	575.00
89	PLAINS	62.50	0.00	887.00
90	PLENTYWOOD	52.75	0.75	1802.00
91	PLEVNA	57.00	0.00	99.00
92	OPLSON	67.10	2.00	1989.00
93	POPLAR	61.00	2.00	788.00
94	RED LODGE	61.20	0.20	1451.00
95	RICHEY	60.00	0.00	282.00
96	RONAN	79.50	0.75	743.00
97	ROUNDUP	52.00	0.00	1425.00
98	RYEGATE	34.00	0.00	179.00
99	SACO	72.00	0.00	184.00
100	SCOBEY	55.55	1.00	1016.00

TABLE VI-22 - CONTINUED -

MONTANA AIRPORT MILL TAX ESTIMATES BY CITY AND TOWN -1972-

		TOTAL LEVY	AIRPORT LEVY	VALUE OF 1 MILL
101	SHELBY	49.50	0.00	2625.00
102	SHERIDAN	52.00	0.00	440.00
103	SIDNEY	45.50	1.00	3711.00
104	STANFORD	55.00	0.00	579.00
105	STEVENSVILLE	67.50	0.00	562.00
106	ST. IGNATIUS	50.00	1.00	362.00
107	SUNBURST	60.00	0.00	301.00
108	SUPERIOR	69.00	0.00	611.00
109	TERRY	59.30	0.00	818.00
110	THOMPSON FALLS	39.70	0.00	888.00
111	THREE FORKS	62.50	1.00	757.00
112	TOWNSEND	84.00	0.00	854.00
113	TROY	50.00	0.00	432.00
114	TWIN BRIDGES	65.00	2.00	330.00
115	VALIER	49.50	0.00	535.00
116	VIRGINIA CITY	74.00	0.00	106.00
117	WALKERVILLE	46.00	0.00	527.00
118	WESTBY	92.00	0.00	102.00
119	WEST YELLOWSTONE	52.00	0.00	1225.00
120	WHITEFISH	56.50	0.00	2253.00
121	WHITEHALL	41.20	0.00	589.00
122	WHITE SULPHUR SPRG	50.50	2.00	771.00
123	WIBAUX	55.00	0.00	496.00
124	WINIFRED	20.00	0.00	114.00
125	WINNETT	66.00	0.00	131.00
126	WOLF POINT	61.00	2.00	1825.00

TABLE VI-23

FORECAST OF 2-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
ALBERTON	1.3	1.3	1.3	1.4	5.3	7.4	8.4	9.5	30.7
ANACONDA	11.3	11.4	11.6	11.7	46.1	61.1	65.3	69.7	242.2
BAINEVILLE	0.3	0.3	0.3	0.3	1.1	1.4	1.4	1.5	5.3
BAKER	3.7	3.7	3.7	3.8	14.9	19.0	19.5	20.0	73.4
BEARCREEK	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	1.0
BELGRADE	1.5	1.6	1.6	1.6	6.3	8.7	9.6	10.5	35.1
BELT	0.7	0.7	0.8	0.8	3.0	3.9	4.0	4.2	15.1
BIG SANDY	1.4	1.4	1.4	1.4	5.6	7.4	7.8	8.3	29.1
BIG TIMBER	3.1	3.1	3.2	3.2	12.6	16.7	17.7	18.9	65.9
BILLINGS	124.3	126.4	128.5	130.7	509.9	686.8	746.1	810.5	2753.4
BOULDER	1.1	1.1	1.2	1.2	4.6	6.2	6.9	7.6	25.3
BOZEMAN	26.9	27.6	28.3	29.0	111.7	156.1	176.6	199.8	644.1
BRIDGER	1.0	1.0	1.0	1.0	4.0	5.2	5.4	5.6	20.2
BROADUS	1.3	1.3	1.3	1.4	5.4	7.0	7.4	7.7	27.4
BROADVIEW	0.2	0.2	0.2	0.2	0.8	1.0	1.0	1.1	3.9
BROCKTON	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	1.4
BROWNING	1.4	1.5	1.5	1.5	5.9	7.8	8.3	8.8	30.7
BUTTE	35.2	35.5	35.7	36.0	142.4	184.1	191.1	198.4	716.0
CASCADE	0.8	0.8	0.8	0.8	3.1	4.1	4.3	4.5	16.1
CHESTER	1.8	1.8	1.8	1.9	7.3	9.7	10.3	10.9	38.2
CHINOOK	2.8	2.8	2.9	2.9	11.4	14.9	15.7	16.5	58.6
CHOTEAU	3.0	3.0	3.1	3.1	12.2	15.8	16.4	17.0	61.3
CIRCLE	1.5	1.5	1.6	1.6	6.2	8.0	8.3	8.6	31.2
CYDE PARK	0.2	0.2	0.2	0.2	0.8	1.0	1.1	1.2	4.1
COLUMBIA FALLS	4.7	4.7	4.8	4.9	19.0	25.5	27.4	29.5	101.5
COLUMBUS	2.2	2.2	2.2	2.3	8.9	11.8	12.6	13.4	46.7
CONFAD	28.0	28.5	29.1	29.7	115.3	157.6	174.0	192.1	639.0
CULBERTSON	1.3	1.3	1.3	1.3	5.1	6.6	6.8	7.1	25.6
CUT BANK	6.4	6.4	6.4	6.5	25.7	32.8	33.7	34.5	126.7
DARBY	0.5	0.5	0.5	0.5	1.9	2.6	2.9	3.2	10.7
DEER LODGE	3.8	3.9	3.9	3.9	15.5	19.8	20.3	20.8	76.4
DENTON	0.9	0.9	0.9	0.9	3.5	4.7	5.0	5.3	18.5
DILLION	6.7	6.8	7.0	7.1	27.6	37.2	40.4	43.9	149.1
DODSON	0.2	0.2	0.2	0.2	0.8	1.0	1.1	1.1	4.0
DRUMMOND	0.6	0.6	0.6	0.6	2.6	3.3	3.4	3.6	12.9
DUTTON	0.8	0.8	0.8	0.8	3.1	4.0	4.1	4.3	15.4
EAST HELENA	4.3	4.3	4.4	4.4	17.4	23.3	25.1	27.0	92.7
EKALAKA	0.7	0.8	0.8	0.8	3.0	3.9	4.1	4.2	15.2
ENNIS	0.9	0.9	0.9	0.9	3.6	4.7	5.0	5.3	18.6
EUREKA	1.2	1.2	1.2	1.2	4.7	6.2	6.6	7.0	24.5
FAIRFIELD	1.3	1.3	1.3	1.3	5.3	6.9	7.4	7.9	27.5
FAIRVIEW	1.0	1.0	1.0	1.0	4.1	5.3	5.5	5.7	20.5
FLAXVILLE	0.2	0.2	0.2	0.2	0.9	1.1	1.1	1.1	4.3
FORSYTH	3.3	3.3	3.3	3.4	13.3	17.6	18.7	19.9	69.6
FORT BENTON	3.4	3.4	3.5	3.5	13.9	18.3	19.5	20.8	72.4

TABLE VI-23 - CONTINUED -

FORECAST OF 2-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
FROID	0.5	0.6	0.6	0.6	2.2	2.9	3.1	3.3	11.6
FROMBERG	0.5	0.5	0.5	0.5	1.8	2.4	2.5	2.6	9.2
GERALDINE	0.7	0.7	0.7	0.7	2.7	3.7	4.1	4.5	15.1
GLASGOW	9.4	9.5	9.5	9.6	37.9	48.5	49.7	51.0	187.1
GLENDIVE	10.7	10.8	10.8	10.9	43.1	55.2	56.6	58.0	212.8
GRASS RANGE	0.1	0.1	0.1	0.1	0.6	0.7	0.8	0.8	2.9
GREAT FALLS	106.6	108.2	109.8	111.5	436.2	583.0	628.1	676.6	2324.0
HAMILTON	5.0	5.1	5.1	5.2	20.3	26.5	27.9	29.3	104.1
HARDIN	5.1	5.2	5.2	5.3	20.8	27.6	29.5	31.5	109.5
HARLEM	1.2	1.2	1.2	1.2	4.9	6.3	6.5	6.8	24.5
HARLOWTON	2.0	2.0	2.0	2.0	8.0	10.4	10.7	11.2	40.3
HAVRE	15.6	15.7	15.8	16.0	63.2	81.7	84.8	88.0	317.6
HELENA	42.4	42.9	43.5	44.1	172.9	229.4	245.0	261.7	909.0
HINGHAM	0.3	0.3	0.3	0.3	1.1	1.4	1.4	1.4	5.2
HINSDALE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOBSON	0.3	0.3	0.3	0.3	1.1	1.4	1.4	1.4	5.4
HOT SPRINGS	0.7	0.7	0.7	0.7	2.9	3.8	4.0	4.2	15.0
HYSHAM	0.6	0.6	0.6	0.7	2.6	3.4	3.6	3.9	13.4
ISMAY	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	1.0
JOLIET	0.5	0.5	0.5	0.5	1.9	2.5	2.6	2.7	9.7
JORDAN	0.8	0.8	0.8	0.8	3.1	4.1	4.4	4.7	16.4
JUDITH GAP	0.1	0.1	0.1	0.1	0.5	0.7	0.7	0.7	2.6
KALISPELL	21.2	21.4	21.6	21.9	86.1	112.6	118.3	124.4	441.4
KEVIN	0.8	0.8	0.8	0.8	3.2	4.2	4.5	4.8	16.8
LAUREL	5.4	5.5	5.5	5.6	22.1	29.3	31.3	33.4	116.0
LAVINA	0.2	0.2	0.2	0.2	0.9	1.1	1.1	1.1	4.2
LEWISTOWN	11.6	11.6	11.7	11.7	46.6	59.5	61.0	62.6	229.7
LIBBY	5.8	5.9	6.0	6.1	23.8	32.0	34.8	37.8	128.3
LIMA	0.3	0.3	0.3	0.3	1.3	1.6	1.7	1.8	6.4
LIVINGSTON	11.6	11.7	11.8	11.8	46.9	60.0	61.5	63.1	231.5
LODGE GRASS	0.4	0.5	0.5	0.5	1.8	2.4	2.5	2.6	9.3
MALTA	3.7	3.7	3.7	3.8	14.9	19.3	20.0	20.8	75.1
MANHATTAN	1.2	1.2	1.2	1.3	4.9	6.6	7.1	7.7	26.3
MEDICINE LAKE	0.4	0.4	0.4	0.4	1.6	2.0	2.0	2.0	7.6
MELSTONE	0.2	0.2	0.2	0.3	1.0	1.3	1.3	1.4	5.0
MILES CITY	14.5	14.6	14.8	14.9	58.8	76.0	78.9	81.9	295.6
MISSOULA	54.9	55.8	56.7	57.6	225.0	303.0	329.2	357.6	1214.8
MOORE	0.3	0.4	0.4	0.4	1.4	2.0	2.2	2.4	8.0
NASHAUA	0.6	0.6	0.6	0.7	2.6	3.3	3.3	3.4	12.5
NEINHART	0.2	0.2	0.2	0.2	0.7	0.8	0.9	0.9	3.3
OPHEIM	0.3	0.3	0.3	0.3	1.3	1.7	1.7	1.7	6.3
OUTLOOK	0.2	0.2	0.2	0.2	0.6	0.8	0.8	0.8	3.0
PHILIPSBURG	1.2	1.2	1.2	1.2	4.8	6.2	6.5	6.9	24.4
PLAINS	1.8	1.9	1.9	2.0	7.6	10.4	11.5	12.7	42.2
PLENTYWOOD	3.7	3.8	3.9	4.0	15.5	21.1	23.3	25.7	85.6

TABLE VI-23 - CONTINUED -

FORECAST OF 2-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
PLEVNA	0.2	0.2	0.2	0.2	0.8	1.1	1.1	1.1	4.1
OPLSON	4.1	4.1	4.2	4.2	16.7	22.1	23.6	25.2	87.6
POPLAR	1.6	1.6	1.6	1.6	6.5	8.4	8.7	9.0	32.5
RED LODGE	2.9	3.0	3.0	3.0	11.9	15.4	16.0	16.6	59.9
RICHEY	0.6	0.6	0.6	0.6	2.4	3.1	3.3	3.5	12.3
RONAN	1.5	1.5	1.5	1.5	6.0	7.7	7.9	8.1	29.8
ROUNDUP	2.9	3.0	3.0	3.0	11.9	15.7	16.8	17.8	62.2
RYEGATE	0.4	0.4	0.4	0.4	1.5	2.0	2.1	2.2	7.8
SACO	0.4	0.4	0.4	0.4	1.5	1.9	1.9	1.9	7.2
SCOBEY	2.0	2.0	2.1	2.1	8.2	10.4	10.5	10.6	39.7
SHELBY	5.3	5.3	5.4	5.4	21.4	27.3	28.0	28.7	105.4
SHEFIDAN	0.9	0.9	0.9	0.9	3.7	5.0	5.3	5.8	19.8
SIDNEY	7.6	7.7	7.8	7.9	31.1	41.3	44.1	47.1	163.5
STANFORD	1.2	1.2	1.2	1.2	4.9	6.5	7.0	7.6	26.0
STEVENSVILLE	1.2	1.2	1.2	1.2	4.7	6.3	6.8	7.3	25.2
ST. IGNATIUS	0.7	0.8	0.8	0.8	3.1	4.1	4.4	4.7	16.3
SUNBURST	0.6	0.6	0.7	0.7	2.6	3.5	3.9	4.3	14.3
SUPERIOR	1.2	1.2	1.3	1.3	5.0	6.5	6.7	7.0	25.2
TERRY	1.7	1.7	1.7	1.7	6.8	9.0	9.6	10.2	35.7
THOMPSON FALLS	1.8	1.9	1.9	1.9	7.5	10.0	10.8	11.6	39.9
THREE FORKS	1.6	1.6	1.6	1.6	6.4	8.5	9.2	9.9	34.0
TOWNSEND	1.8	1.8	1.8	1.8	7.1	9.4	10.0	10.7	37.3
TROY	0.9	0.9	0.9	0.9	3.6	4.9	5.2	5.6	19.4
TWIN BRIDGES	0.7	0.7	0.7	0.7	2.8	3.7	4.0	4.3	14.8
VALIER	1.1	1.1	1.1	1.1	4.3	5.4	5.5	5.6	20.9
VIRGINIA CITY	0.2	0.2	0.2	0.2	0.9	1.2	1.2	1.3	4.6
WALKERVILLE	1.1	1.1	1.1	1.1	4.3	5.6	5.8	6.0	21.8
WESTBY	0.2	0.2	0.2	0.2	0.8	1.0	1.1	1.1	4.0
WEST YELLOWSTONE	2.5	2.6	2.6	2.6	10.3	13.8	14.9	16.0	55.0
WHITEFISH	4.6	4.6	4.6	4.7	18.5	23.9	24.8	25.8	93.0
WHITEHALL	1.2	1.2	1.2	1.2	4.9	6.4	6.7	7.0	25.0
WHITE SULPHUR SPRG	1.6	1.6	1.6	1.6	6.3	8.2	8.5	8.8	31.8
WIBAUX	1.0	1.0	1.0	1.0	4.1	5.3	5.5	5.7	20.5
WINIFRED	0.2	0.2	0.2	0.2	1.0	1.3	1.3	1.4	5.0
WINNETT	0.3	0.3	0.3	0.3	1.1	1.4	1.4	1.5	5.4
WOLF POINT	3.7	3.7	3.7	3.7	14.9	19.0	19.5	20.0	73.3

TABLE VI-24
FORECAST OF 3-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
ALBERTON	1.9	2.0	2.0	2.1	8.0	11.2	12.6	14.3	46.1
ANACONDA	16.9	17.2	17.4	17.6	69.1	91.6	97.9	104.6	363.2
BAINEVILLE	0.4	0.4	0.4	0.4	1.6	2.0	2.1	2.2	7.9
BAKER	5.5	5.6	5.6	5.6	22.3	28.6	29.3	30.0	110.2
BEARCREEK	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	1.5
BELGRADE	2.3	2.3	2.4	2.4	9.5	13.0	14.3	15.8	52.6
BELT	1.1	1.1	1.1	1.1	4.5	5.8	6.1	6.3	22.7
BIG SANDY	2.0	2.1	2.1	2.1	8.3	11.0	11.7	12.5	43.6
BIG TIMBER	4.6	4.7	4.8	4.8	18.9	25.0	26.6	28.3	98.9
BILLINGS	186.5	189.6	192.8	196.0	764.9	1030.2	1119.2	1215.8	4130.1
BOULDER	1.7	1.7	1.7	1.8	6.8	9.4	10.3	11.4	37.9
BOZEMAN	40.3	41.4	42.4	43.4	167.5	234.1	264.8	299.6	966.1
BRIDGER	1.5	1.5	1.5	1.5	6.0	7.8	8.1	8.4	30.3
BROADUS	2.0	2.0	2.0	2.0	8.0	10.5	11.0	11.6	41.1
BROADVIEW	0.3	0.3	0.3	0.3	1.2	1.5	1.6	1.6	5.8
BROCKTON	0.1	0.1	0.1	0.1	0.4	0.5	0.6	0.6	2.1
BROWNING	2.2	2.2	2.2	2.2	8.8	11.7	12.4	13.2	46.1
BUTTE	52.8	53.2	53.6	54.0	213.6	276.2	286.7	297.6	1074.1
CASCADE	1.2	1.2	1.2	1.2	4.7	6.2	6.5	6.8	24.2
CHESTER	2.7	2.7	2.8	2.8	11.0	14.5	15.4	16.4	57.3
CHINOOK	4.2	4.3	4.3	4.4	17.1	22.4	23.6	24.8	87.9
CHOTEAU	4.5	4.6	4.6	4.6	18.3	23.6	24.5	25.5	91.9
CIRCLE	2.3	2.3	2.3	2.4	9.3	12.0	12.5	13.0	46.8
CYDE PARK	0.3	0.3	0.3	0.3	1.2	1.6	1.7	1.8	6.2
COLUMBIA FALLS	7.0	7.1	7.2	7.3	28.6	38.2	41.1	44.3	152.2
COLUMBUS	3.3	3.3	3.4	3.4	13.4	17.7	18.9	20.1	70.1
CONRAD	42.0	42.8	43.7	44.5	173.0	236.4	261.0	288.2	958.6
CULBERTSON	1.9	1.9	1.9	1.9	7.6	9.9	10.2	10.6	38.3
CUT BANK	9.6	9.6	9.7	9.7	38.5	49.3	50.5	51.8	190.1
DARBY	0.7	0.7	0.7	0.7	2.9	4.0	4.4	4.8	16.0
DEER LODGE	5.8	5.8	5.8	5.9	23.2	29.7	30.5	31.2	114.6
DENTON	1.3	1.3	1.3	1.4	5.3	7.0	7.5	7.9	27.7
DILLION	10.1	10.3	10.4	10.6	41.4	55.8	60.6	65.8	223.6
DODSON	0.3	0.3	0.3	0.3	1.2	1.6	1.6	1.6	6.0
DRUMMOND	1.0	1.0	1.0	1.0	3.9	5.0	5.2	5.4	19.4
DUTTON	1.1	1.1	1.2	1.2	4.6	5.9	6.2	6.4	23.1
EAST HELENA	6.4	6.5	6.6	6.7	26.1	34.9	37.6	40.5	139.0
EKALAKA	1.1	1.1	1.1	1.1	4.5	5.9	6.1	6.3	22.8
ENNIS	1.3	1.3	1.3	1.4	5.3	7.1	7.5	8.0	27.9
EUREKA	1.7	1.8	1.8	1.8	7.0	9.3	9.9	10.5	36.8
FAIRFIELD	1.9	2.0	2.0	2.0	7.9	10.4	11.1	11.8	41.2
FAIRVIEW	1.5	1.5	1.5	1.5	6.1	7.9	8.2	8.5	30.7
FLAXVILLE	0.3	0.3	0.3	0.3	1.3	1.7	1.7	1.7	6.4
FORSYTH	4.9	5.0	5.0	5.1	20.0	26.4	28.1	29.9	104.3
FORT BENTON	5.1	5.2	5.2	5.3	20.8	27.5	29.3	31.1	108.7

TABLE VI-24 - CONTINUED -

FORECAST OF 3-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
FROID	0.8	0.8	0.8	0.8	3.3	4.4	4.7	5.0	17.4
FROMBERG	0.7	0.7	0.7	0.7	2.7	3.6	3.7	3.8	13.8
GERALDINE	1.0	1.0	1.0	1.0	4.1	5.6	6.2	6.8	22.6
GLASGOW	14.1	14.2	14.3	14.3	56.9	72.7	74.6	76.4	280.6
GLENDIVE	16.1	16.1	16.2	16.3	64.7	82.7	84.8	87.0	319.3
GRASS RANGE	0.2	0.2	0.2	0.2	0.9	1.1	1.2	1.2	4.3
GREAT FALLS	159.9	162.3	164.8	167.2	654.3	874.6	942.2	1015.0	3486.0
HAMILTON	7.5	7.6	7.7	7.7	30.5	39.8	41.8	44.0	156.1
HARDIN	7.7	7.8	7.9	8.0	31.2	41.4	44.3	47.3	164.2
HARLEM	1.8	1.8	1.8	1.8	7.3	9.4	9.8	10.2	36.7
HARLOWTON	3.0	3.0	3.0	3.0	12.0	15.5	16.1	16.7	60.4
HAVRE	23.4	23.6	23.8	24.0	94.7	122.5	127.1	132.0	476.3
HELENA	63.6	64.4	65.3	66.1	259.3	344.0	367.5	392.6	1363.5
HINGHAM	0.4	0.4	0.4	0.4	1.6	2.0	2.1	2.1	7.8
HINSDALE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOBSON	0.4	0.4	0.4	0.4	1.7	2.1	2.1	2.1	8.0
HOT SPRINGS	1.1	1.1	1.1	1.1	4.4	5.7	6.0	6.3	22.5
HYSHAM	0.9	1.0	1.0	1.0	3.9	5.1	5.4	5.8	20.2
ISMAY	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	1.5
JOLIET	0.7	0.7	0.7	0.7	2.9	3.7	3.9	4.0	14.5
JORDAN	1.2	1.2	1.2	1.2	4.7	6.2	6.6	7.0	24.6
JUDITH GAP	0.2	0.2	0.2	0.2	0.8	1.0	1.0	1.1	3.8
KALISPELL	31.8	32.1	32.5	32.8	129.2	168.9	177.5	186.6	662.2
KEVIN	1.2	1.2	1.2	1.2	4.8	6.4	6.8	7.2	25.2
LAUREL	8.1	8.2	8.3	8.4	33.1	43.9	46.9	50.1	173.9
LAVINA	0.3	0.3	0.3	0.3	1.3	1.6	1.7	1.7	6.3
LEWISTOWN	17.3	17.4	17.5	17.6	69.9	89.3	91.6	93.9	344.6
LIBBY	8.7	8.8	9.0	9.1	35.6	48.0	52.2	56.7	192.5
LIMA	0.5	0.5	0.5	0.5	1.9	2.5	2.5	2.6	9.5
LIVINGSTON	17.5	17.6	17.6	17.7	70.4	90.0	92.3	94.6	347.2
LODGE GRASS	0.7	0.7	0.7	0.7	2.7	3.6	3.8	3.9	14.0
MALTA	5.5	5.6	5.6	5.7	22.4	29.0	30.1	31.2	112.6
MANHATTAN	1.8	1.8	1.9	1.9	7.4	9.9	10.7	11.5	39.5
MEDICINE LAKE	0.6	0.6	0.6	0.6	2.3	3.0	3.0	3.0	11.4
MELSTONE	0.4	0.4	0.4	0.4	1.5	1.9	2.0	2.1	7.5
MILES CITY	21.8	22.0	22.1	22.3	88.2	114.0	118.3	122.9	443.4
MISSOULA	82.3	83.7	85.1	86.5	337.5	454.5	493.8	536.4	1822.1
MOORE	0.5	0.5	0.5	0.6	2.2	3.0	3.3	3.6	12.0
NASHAUA	1.0	1.0	1.0	1.0	3.9	4.9	5.0	5.0	18.8
NEINHART	0.2	0.2	0.2	0.2	1.0	1.3	1.3	1.4	5.0
OPHEIM	0.5	0.5	0.5	0.5	2.0	2.5	2.5	2.5	9.5
OUTLOOK	0.2	0.2	0.2	0.2	0.9	1.2	1.2	1.2	4.5
PHILIPSBURG	1.8	1.8	1.8	1.8	7.1	9.3	9.8	10.3	36.6
PLAINS	2.8	2.8	2.9	2.9	11.4	15.6	17.2	19.0	63.2
PLENTYWOOD	5.6	5.7	5.9	6.0	23.2	31.7	35.0	38.6	128.5

TABLE VI-24 - CONTINUED -

FORECAST OF 3-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
PLEVNA	0.3	0.3	0.3	0.3	1.2	1.6	1.6	1.7	6.1
OPLSON	6.1	6.2	6.3	6.4	25.0	33.2	35.4	37.9	131.5
POPLAR	2.4	2.4	2.4	2.5	9.7	12.5	13.0	13.5	48.8
RED LODGE	4.4	4.5	4.5	4.5	17.9	23.1	24.0	24.9	89.9
RICHEY	0.9	0.9	0.9	0.9	3.5	4.7	5.0	5.3	18.5
RONAN	2.3	2.3	2.3	2.3	9.1	11.6	11.9	12.2	44.8
ROUNDUP	4.4	4.4	4.5	4.5	17.9	23.6	25.1	26.7	93.3
RYEGATE	0.6	0.6	0.6	0.6	2.2	3.0	3.2	3.4	11.7
SACO	0.6	0.6	0.6	0.6	2.2	2.8	2.9	2.9	10.8
SCOBEY	3.1	3.1	3.1	3.1	12.3	15.5	15.7	15.9	59.5
SHELBY	8.0	8.0	8.0	8.1	32.1	41.0	42.0	43.1	158.1
SHERIDAN	1.4	1.4	1.4	1.4	5.6	7.4	8.0	8.6	29.6
SIDNEY	11.4	11.6	11.7	11.9	46.6	61.9	66.1	70.6	245.3
STANFORD	1.8	1.8	1.8	1.9	7.3	9.8	10.5	11.4	39.0
STEVENSVILLE	1.7	1.8	1.8	1.8	7.1	9.5	10.2	11.0	37.9
ST. IGNATIUS	1.1	1.1	1.2	1.2	4.6	6.1	6.6	7.1	24.4
SUNBURST	0.9	1.0	1.0	1.0	3.9	5.3	5.8	6.5	21.5
SUPERIOR	1.9	1.9	1.9	1.9	7.5	9.7	10.1	10.5	37.8
TERRY	2.5	2.5	2.6	2.6	10.3	13.6	14.4	15.3	53.6
THOMPSON FALLS	2.7	2.8	2.8	2.9	11.2	15.0	16.2	17.4	59.8
THREE FORKS	2.3	2.4	2.4	2.4	9.6	12.8	13.8	14.8	51.0
TOWNSEND	2.6	2.7	2.7	2.7	10.7	14.2	15.1	16.0	55.9
TROY	1.3	1.4	1.4	1.4	5.5	7.3	7.9	8.5	29.1
TWIN BRIDGES	1.0	1.0	1.1	1.1	4.2	5.6	6.0	6.5	22.2
VALIER	1.6	1.6	1.6	1.6	6.5	8.2	8.3	8.4	31.3
VIRGINIA CITY	0.3	0.3	0.3	0.3	1.3	1.8	1.9	2.0	6.9
WALKERVILLE	1.6	1.6	1.6	1.6	6.5	8.4	8.7	9.0	32.6
WESTBY	0.3	0.3	0.3	0.3	1.2	1.6	1.6	1.6	6.0
WEST YELLOWSTONE	3.8	3.8	3.9	4.0	15.5	20.7	22.3	24.0	82.5
WHITEFISH	6.9	6.9	7.0	7.0	27.8	35.9	37.2	38.7	139.5
WHITEHALL	1.8	1.8	1.8	1.9	7.3	9.6	10.1	10.6	37.5
WHITE SULPHUR SPRG	2.3	2.4	2.4	2.4	9.5	12.3	12.7	13.2	47.8
WIBAUX	1.5	1.5	1.5	1.5	6.1	7.9	8.2	8.5	30.7
WINIFRED	0.4	0.4	0.4	0.4	1.4	1.9	2.0	2.1	7.5
WINNETT	0.4	0.4	0.4	0.4	1.6	2.1	2.2	2.2	8.1
WOLF POINT	5.5	5.6	5.6	5.6	22.3	28.5	29.2	29.9	109.9

TABLE VI-25

FORECAST OF 4-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
ALBERTON	2.6	2.6	2.7	2.8	10.7	14.9	16.9	19.1	61.5
ANACONDA	22.6	22.9	23.2	23.5	92.1	122.2	130.5	139.5	484.3
BAINEVILLE	0.5	0.5	0.5	0.5	2.1	2.7	2.8	2.9	10.6
BAKER	7.4	7.4	7.5	7.5	29.8	38.1	39.0	40.0	146.9
BEARCREEK	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.6	2.0
BELGRADE	3.1	3.1	3.2	3.3	12.7	17.3	19.1	21.1	70.1
BELT	1.5	1.5	1.5	1.5	6.0	7.8	8.1	8.4	30.2
BIG SANDY	2.7	2.8	2.8	2.8	11.1	14.7	15.7	16.7	58.2
BIG TIMBER	6.2	6.3	6.3	6.4	25.2	33.4	35.5	37.8	131.9
BILLINGS	248.7	252.8	257.0	261.3	1019.9	1373.6	1492.2	1621.1	5506.8
BOULDER	2.2	2.3	2.3	2.3	9.1	12.5	13.8	15.2	50.6
BOZEMAN	53.8	55.1	56.5	57.9	223.4	312.1	353.1	399.5	1288.1
BRIDGER	2.0	2.0	2.0	2.0	8.0	10.4	10.8	11.2	40.4
BROADUS	2.6	2.7	2.7	2.7	10.7	14.0	14.7	15.5	54.9
BROADVIEW	0.4	0.4	0.4	0.4	1.5	2.0	2.1	2.2	7.8
BROCKTON	0.1	0.1	0.1	0.1	0.6	0.7	0.7	0.8	2.8
BROWNING	2.9	2.9	3.0	3.0	11.8	15.6	16.6	17.6	61.5
BUTTE	70.4	70.9	71.5	72.0	284.8	368.2	382.2	396.8	1432.1
CASCADE	1.6	1.6	1.6	1.6	6.3	8.2	8.7	9.1	32.3
CHESTER	3.6	3.6	3.7	3.7	14.6	19.3	20.6	21.9	76.4
CHINOOK	5.6	5.7	5.7	5.8	22.9	29.9	31.4	33.0	117.2
CHOTEAU	6.0	6.1	6.1	6.2	24.4	31.5	32.7	34.0	122.5
CIRCLE	3.1	3.1	3.1	3.1	12.4	16.1	16.7	17.3	62.4
CYDE PARK	0.4	0.4	0.4	0.4	1.6	2.1	2.2	2.4	8.3
COLUMBIA FALLS	9.3	9.4	9.6	9.7	38.1	50.9	54.8	59.1	202.9
COLUMBUS	4.4	4.4	4.5	4.6	17.9	23.6	25.2	26.8	93.4
CONRAD	56.0	57.1	58.2	59.4	230.6	315.2	348.0	384.2	1278.1
CULBERTSON	2.5	2.5	2.6	2.6	10.2	13.1	13.6	14.2	51.1
CUT BANK	12.8	12.8	12.9	12.9	51.4	65.7	67.3	69.1	253.5
DARBY	0.9	1.0	1.0	1.0	3.9	5.3	5.8	6.4	21.4
DEER LODGE	7.7	7.7	7.8	7.8	31.0	39.6	40.6	41.6	152.8
DENTON	1.7	1.8	1.8	1.8	7.1	9.3	9.9	10.6	36.9
DILLION	13.5	13.7	13.9	14.1	55.2	74.4	80.8	87.8	298.1
DODSON	0.4	0.4	0.4	0.4	1.6	2.1	2.1	2.1	8.0
DRUMMOND	1.3	1.3	1.3	1.3	5.1	6.6	6.9	7.2	25.8
DUTTON	1.5	1.5	1.5	1.5	6.1	7.9	8.2	8.5	30.8
EAST HELENA	8.5	8.6	8.8	8.9	34.8	46.5	50.1	54.0	185.4
EKALAKA	1.5	1.5	1.5	1.5	6.0	7.8	8.1	8.4	30.4
ENNIS	1.7	1.8	1.8	1.8	7.1	9.4	10.0	10.7	37.2
EUREKA	2.3	2.3	2.4	2.4	9.4	12.4	13.2	14.1	49.1
FAIRFIELD	2.6	2.6	2.6	2.7	10.5	13.9	14.8	15.7	54.9
FAIRVIEW	2.0	2.0	2.0	2.1	8.1	10.5	10.9	11.3	41.0
FLAXVILLE	0.4	0.4	0.4	0.4	1.8	2.2	2.3	2.3	8.5
FORSYTH	6.5	6.6	6.7	6.8	26.6	35.2	37.4	39.8	139.1
FORT BENTON	6.8	6.9	7.0	7.1	27.7	36.7	39.0	41.5	144.9

TABLE VI-25 - CONTINUED -

FORECAST OF 4-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
FROID	1.1	1.1	1.1	1.1	4.4	5.9	6.2	6.6	23.1
FROMBERG	0.9	0.9	0.9	0.9	3.7	4.7	4.9	5.1	18.4
GERALDINE	1.3	1.3	1.4	1.4	5.4	7.4	8.2	9.1	30.1
GLASGOW	18.8	18.9	19.0	19.1	75.8	97.0	99.4	101.9	374.1
GLENDIVE	21.4	21.5	21.6	21.7	86.3	110.3	113.1	116.0	425.7
GRASS RANGE	0.3	0.3	0.3	0.3	1.1	1.5	1.5	1.6	5.8
GREAT FALLS	213.2	216.4	219.7	223.0	872.3	1166.1	1256.2	1353.3	4647.9
HAMILTON	10.0	10.1	10.2	10.3	40.6	53.1	55.8	58.6	208.1
HARDIN	10.2	10.3	10.5	10.6	41.6	55.3	59.0	63.1	219.0
HARLEM	2.4	2.4	2.4	2.5	9.7	12.6	13.1	13.6	49.0
HARLOWTON	4.0	4.0	4.0	4.0	16.0	20.7	21.5	22.3	80.5
HAVRE	31.2	31.5	31.7	31.9	126.3	163.3	169.5	176.0	635.1
HELENA	84.7	85.9	87.0	88.2	345.8	458.7	490.0	523.5	1818.0
HINGHAM	0.5	0.5	0.5	0.5	2.1	2.7	2.8	2.8	10.4
HINSDALE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOBSON	0.6	0.6	0.6	0.6	2.2	2.8	2.8	2.9	10.7
HOT SPRINGS	1.4	1.5	1.5	1.5	5.8	7.6	8.0	8.4	30.0
HYSHAM	1.3	1.3	1.3	1.3	5.1	6.8	7.2	7.7	26.9
ISMAY	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.5	2.0
JOLIET	1.0	1.0	1.0	1.0	3.8	5.0	5.2	5.4	19.3
JORDAN	1.5	1.6	1.6	1.6	6.3	8.3	8.8	9.4	32.7
JUDITH GAP	0.3	0.3	0.3	0.3	1.0	1.3	1.4	1.4	5.1
KALISPELL	42.4	42.8	43.3	43.7	172.3	225.2	236.7	248.8	882.9
KEVIN	1.6	1.6	1.6	1.6	6.4	8.5	9.0	9.6	33.5
LAUREL	10.8	11.0	11.1	11.2	44.1	58.5	62.5	66.8	231.9
LAVINA	0.4	0.4	0.4	0.4	1.7	2.2	2.2	2.2	8.4
LEWISTOWN	23.1	23.2	23.3	23.5	93.1	119.1	122.1	125.2	459.5
LIBBY	11.6	11.8	12.0	12.2	47.5	64.0	69.5	75.6	256.7
LIMA	0.6	0.6	0.6	0.6	2.5	3.3	3.4	3.5	12.7
LIVINGSTON	23.3	23.4	23.5	23.6	93.8	120.0	123.0	126.1	462.9
LODGE GRASS	0.9	0.9	0.9	0.9	3.6	4.8	5.0	5.3	18.7
MALTA	7.4	7.4	7.5	7.5	29.9	38.6	40.1	41.6	150.1
MANHATTAN	2.4	2.5	2.5	2.5	9.9	13.2	14.2	15.3	52.6
MEDICINE LAKE	0.8	0.8	0.8	0.8	3.1	4.0	4.0	4.1	15.2
MELSTONE	0.5	0.5	0.5	0.5	2.0	2.6	2.7	2.8	10.0
MILES CITY	29.1	29.3	29.5	29.7	117.6	152.0	157.8	163.8	591.2
MISSOULA	109.7	111.5	113.4	115.3	450.0	606.0	658.4	715.2	2429.5
MOORE	0.7	0.7	0.7	0.7	2.9	3.9	4.3	4.8	16.0
NASHAUA	1.3	1.3	1.3	1.3	5.2	6.5	6.6	6.7	25.1
NEINHART	0.3	0.3	0.3	0.3	1.3	1.7	1.8	1.8	6.6
OPHEIM	0.7	0.7	0.7	0.7	2.6	3.3	3.3	3.4	12.7
OUTLOOK	0.3	0.3	0.3	0.3	1.2	1.6	1.6	1.6	6.0
PHILIPSBURG	2.3	2.4	2.4	2.4	9.5	12.5	13.1	13.8	48.8
PLAINS	3.7	3.8	3.8	3.9	15.2	20.8	23.0	25.3	84.3
PLENTYWOOD	7.5	7.6	7.8	8.0	30.9	42.2	46.6	51.5	171.3

TABLE VI-25 - CONTINUED -

FORECAST OF 4-MILL AIRPORT LEVY BY MUNICIPALITIES IN THOUSANDS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
PLEVNA	0.4	0.4	0.4	0.4	1.6	2.1	2.2	2.3	8.2
OPLSON	8.2	8.3	8.4	8.5	33.3	44.2	47.2	50.5	175.3
POPLAR	3.2	3.2	3.2	3.3	12.9	16.7	17.4	18.0	65.1
RED LODGE	5.9	5.9	6.0	6.0	23.8	30.8	32.0	33.2	119.8
RICHEY	1.2	1.2	1.2	1.2	4.7	6.2	6.6	7.1	24.6
RONAN	3.0	3.0	3.0	3.0	12.1	15.5	15.9	16.3	59.7
ROUNDUP	5.8	5.9	6.0	6.1	23.8	31.5	33.5	35.6	124.4
RYEGATE	0.7	0.7	0.8	0.8	3.0	4.0	4.2	4.5	15.6
SACO	0.7	0.7	0.7	0.7	3.0	3.8	3.8	3.8	14.4
SCOBEY	4.1	4.1	4.1	4.1	16.4	20.7	21.0	21.3	79.4
SHELBY	10.6	10.7	10.7	10.8	42.7	54.6	56.0	57.4	210.8
SHERIDAN	1.8	1.8	1.9	1.9	7.4	9.9	10.7	11.5	39.5
SIDNEY	15.2	15.4	15.6	15.9	62.2	82.5	88.1	94.2	327.0
STANFORD	2.4	2.4	2.5	2.5	9.8	13.0	14.1	15.1	52.0
STEVENSVILLE	2.3	2.4	2.4	2.4	9.5	12.7	13.6	14.7	50.5
ST. IGNATIUS	1.5	1.5	1.5	1.6	6.1	8.2	8.8	9.5	32.5
SUNBURST	1.3	1.3	1.3	1.3	5.2	7.1	7.8	8.6	28.6
SUPERIOR	2.5	2.5	2.5	2.5	10.0	13.0	13.5	14.0	50.5
TERRY	3.4	3.4	3.4	3.5	13.7	18.1	19.2	20.5	71.4
THOMPSON FALLS	3.7	3.7	3.8	3.8	15.0	20.0	21.6	23.2	79.8
THREE FORKS	3.1	3.2	3.2	3.3	12.8	17.1	18.4	19.8	68.0
TOWNSEND	3.5	3.5	3.6	3.6	14.3	18.9	20.1	21.4	74.6
TROY	1.8	1.8	1.8	1.9	7.3	9.7	10.5	11.3	38.8
TWIN BRIDGES	1.4	1.4	1.4	1.4	5.6	7.4	8.0	8.6	29.6
VALIER	2.1	2.2	2.2	2.2	8.6	10.9	11.0	11.2	41.7
VIRGINIA CITY	0.4	0.4	0.4	0.5	1.8	2.3	2.5	2.7	9.3
WALKERVILLE	2.1	2.2	2.2	2.2	8.7	11.2	11.6	12.1	43.5
WESTBY	0.4	0.4	0.4	0.4	1.6	2.1	2.1	2.1	8.0
WEST YELLOWSTONE	5.0	5.1	5.2	5.3	20.7	27.6	29.7	32.0	110.0
WHITEFISH	9.1	9.2	9.3	9.4	37.0	47.6	49.7	51.5	186.1
WHITEHALL	2.4	2.4	2.5	2.5	9.8	12.8	13.4	14.1	50.0
WHITE SULPHUR SPRG	3.1	3.2	3.2	3.2	12.7	16.4	17.0	17.6	63.7
WIBAUX	2.0	2.0	2.0	2.1	8.1	10.5	10.9	11.3	41.0
WINIFRED	0.5	0.5	0.5	0.5	1.9	2.5	2.7	2.9	10.0
WINNETT	0.5	0.5	0.5	0.5	2.2	2.8	2.9	3.0	10.8
WOLF POINT	7.4	7.4	7.4	7.5	29.7	38.0	38.9	39.9	146.6

3. Net Airport Operation and Maintenance Cost

Also included in the individual airport financial feasibility analysis is the estimate of net airport operating revenues (or deficit). The airport operation revenues are generally from rentals, fees, etc. The total cost of an airport operation is the cost of operation and maintenance of the airport. Unfortunately, in most cases historical financial data in airport operation are not available. For this reason, rough "order of magnitude" estimates of airport operating revenues and costs of operation and maintenance were derived, using regional and national averages where appropriate, on the basis of aircraft operations and major airport facilities.

Net revenue or deficit estimates were added to the total project costs of the airport. This "order of magnitude" overall cost represents a reasonable estimate of total financing needs of an airport for the study period.

4. Individual Airport Financial Feasibility Conclusions

It was concluded earlier from the analysis of fiscal capacity and financial needs that, in general, under existing restrictive statutes, it is almost impossible for counties and cities to meet airport financial requirements. First, there is a statutory limit on airport mill taxes. The maximum two mill levy is not sufficient to cover development costs and net airport operating and maintenance costs.

Secondly, under the existing statutes, municipal governments cannot accumulate funds for airport development purposes (except for an airport authority which can accommodate up to $5 million) for more than a one year period. Since most of the expansion projects require lump sum expenditures, it is most unlikely that even with maximum two mill levies airports can engage in meaningful development programs.

Under the assumptions that the state participates in sharing non-Federal development costs equally with the owner and that airport mill levies on the property valuations can be increased and accumulated for at least 10 years, the following conclusions concerning individual municipal financial feasibility may be drawn:

a. There are 63 airports which can finance expansion programs as well as operating and maintenance costs with two mill levies;

b. There are 15 airports which can meet development and O&M costs with three mill levies;

c. There are 4 airports which can meet development and operation and maintenance costs with four mill airport taxes;

d. There is only 1 airport which requires five mills to cover financial needs. Financing requirements are established for the first period of 1974 - 1977. With bond financing extending 10 years, the four mill levy can produce adequate funds;

e. There are 6 airports which require immediate individual attention to find financing sources. Special legislation may be required at the municipal level to generate enough funds to meet projected facility requirements. All require mill levies more than six mills, and possibly bond financing over 20 years.

Detailed analysis and evaluation of individual airport financing feasibility are contained in Appendix II, No. 3, along with the list of airports and their differing financing capabilities.

F. Forecasting Methodologies for Tax Revenues

Presented in this section are the detailed forecasting methodologies for determining:

1) aviation fuel consumption and taxes by general aviation and air carrier category,
2) county taxable property valuation,
3) city-town taxable property valuation, and
4) personal property tax on aircraft.

The overall procedure was based upon annual estimates. Annual forecasts were grouped on a cumulative basis to correspond to development stages of airport expansion programs, namely, the 1974 - 1977, 1978 - 1982, 1983 - 1987 and 1988 - 1992 periods.

1. Forecast Methodology for Aviation Fuel Consumption and Taxes

Historical data on aviation fuel consumption for Montana was available from the Montana Aeronautics Commission. The total figure for 1972 was subdivided into two components: air carrier fuel consumption and general aviation aircraft fuel consumption. Since general aviation operations account for a greater percentage of total operations in Montana than they do in the U.S. on the average, it was assumed that percentage fuel consumption of general aviation aircraft would be proportionately greater in Montana. Accordingly, it was estimated that 15% of the total fuel was consumed by general aviation in 1972. (U.S. figure is 9.1% for 1972 and historically is increasing.)

Independent forecasts were then made for air carrier and general aviation fuel consumption according to the national growth rates forecasted by the Federal Aviation Administration Office of Aviation Economics.

Aviation fuel taxes were derived by applying one, two, three and four cents to the total projected gallons. Since the fuel tax should be expressed in 1972 constant dollars, an adjustment factor of 3% was applied to the projected fuel taxes to correct for inflation.

The forecast of fuel consumption in gallons is presented in Table VI-26.

TABLE VI-26
HISTORICAL AND FORECAST U.S. AND MONTANA STATE AVIATION FUEL CONSUMPTION
(IN MILLIONS OF GALLONS)

	U.S.			Montana		
	Air Carrier	General Aviation	Total	Air Carrier	General Aviation	Total
1969	7,157	650	7,807	NA	NA	28
1970	7,865	725	8,590	NA	NA	35
1971	8,007	768	8,775	NA	NA	31
1972	7,945	793	8,738	29	5	34
1977 1/	11,305	1,015	12,320	41	7	48
1982	15,805	1,355	17,160	57	9	66
1987	NA	NA	NA	80	12	92
1992	NA	NA	NA	112	16	128

1/ U.S. Forecast based on FAA Office of Aviation Economics Report

NA: Not available

2. Forecast Methodology for County Taxable Property Valuation

The forecast for Taxable Valuation in 1972 dollars for Montana counties as shown in Table VI-27 was developed in five year intervals (1977 - 1992), according to the following method. The ratio of taxable valuation to population was studied for the state and for all 56 counties for the years 1960 - 1972. Data for taxable valuation by county and state were obtained from the Annual Reports of the Montana State Board of Equalization.

From these data, the above ratio was estimated for the entire state for the forecast years. The total state taxable valuation forecast was obtained from Census Bureau state population forecasts. Since the ratio for the state remained relatively stable through the period 1960 - 1972, it was decided that the resulting forecast of state taxable valuation was highly dependable. It was therefore used as a control total for the county estimates.

Individual county forecasts were obtained in the same way as those of the state. Estimates for the above ratio were determined for each of the forecast years based on 1960 - 1972 data, and estimates for the county taxable valuation were then obtained as a result of applying county population forecasts. The values were then adjusted so that sum total of county taxable valuation was equal to the state total.

TABLE VI-27
FORECAST OF TAXABLE VALUATION OF MONTANA COUNTIES IN MILLIONS OF 1972 DOLLARS

COUNTY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92-TOT	GRAND TOT
BEAVERHEAD	15.2	15.8	16.4	17.1	64.7	89.0	97.2	107.5	358.6
BIG HORN	15.4	16.0	16.6	17.2	65.4	89.3	97.5	108.0	360.3
BLAINE	10.4	10.6	10.9	11.1	43.2	55.1	55.7	56.9	211.0
BROADWATER	5.3	5.5	5.7	5.8	22.5	28.6	28.9	29.4	109.5
CARBON	16.8	17.4	17.9	18.5	70.8	92.2	93.1	94.8	351.0
CARTER	6.1	6.1	6.2	6.2	24.9	30.6	30.9	31.5	118.0
CASCADE	91.6	96.8	102.2	107.9	398.7	569.5	624.6	691.8	2284.7
CHOUTEAU	21.3	20.8	20.4	19.9	82.7	99.5	100.4	102.2	385.1
CUSTER	15.3	15.6	15.9	16.3	63.4	82.9	89.1	98.8	334.3
DANIELS	5.9	6.0	6.2	6.3	24.6	31.1	31.4	32.1	119.3
DAWSON	17.3	17.7	18.1	18.6	72.0	92.9	94.0	95.9	354.9
DEER LODGE	17.4	17.6	17.8	18.0	70.9	90.0	91.3	93.4	345.8
FALLON	20.5	21.1	21.8	22.5	86.1	117.9	128.7	140.9	473.8
FERGUS	21.2	21.4	21.6	21.7	86.1	108.8	110.0	0.0	305.1
FLATHEAD	51.1	52.9	54.7	56.7	215.6	298.6	327.3	362.2	1203.8
GALLATIN	34.7	35.6	36.5	37.4	144.4	197.2	216.5	239.9	798.1
GARFIELD	5.8	5.8	5.9	6.0	23.7	29.4	29.7	30.2	113.2
GLACIER	23.1	23.0	23.0	23.0	92.3	117.0	125.9	139.3	474.6
GOLDEN VALLEY	3.6	3.7	3.8	3.9	15.1	18.7	18.8	19.2	71.9
GRANITE	5.5	5.7	5.8	6.0	23.2	29.5	30.4	32.8	116.1
HILL	22.6	23.7	24.9	26.2	97.6	134.0	143.8	158.8	534.4
JEFFERSON	9.0	9.4	9.7	10.0	38.3	51.8	56.4	62.5	209.2
JUDITH BASIN	9.2	9.4	9.6	9.8	38.2	48.3	48.8	49.6	185.1
LAKE	19.6	20.2	20.7	21.3	82.0	111.8	122.4	135.3	451.6
LEWIS & CLARK	40.2	41.6	43.0	44.5	169.4	233.9	256.5	284.3	944.3
LIBERTY	7.7	7.8	8.0	8.2	31.9	41.5	44.6	48.8	166.9
LINCOLN	18.5	19.2	19.9	20.7	78.5	108.6	119.3	132.3	438.9
MADISON	10.4	10.5	10.5	10.6	42.2	53.7	57.7	63.1	216.9
MC CONE	7.0	7.3	7.6	7.9	30.0	39.7	42.2	46.5	158.5
MEAGHER	5.4	5.6	5.9	6.1	23.2	30.8	33.1	36.3	123.5
MINERAL	3.9	4.0	4.2	4.3	16.6	21.5	23.3	25.6	87.2
MISSOULA	60.7	61.9	63.1	64.3	250.1	339.0	372.5	413.3	1375.1
MUSSELSHELL	7.7	7.9	8.0	8.1	32.0	40.2	40.6	41.4	154.3
PARK	14.6	14.8	15.1	15.3	59.9	76.4	77.4	79.1	292.9
PETROLEUM	2.4	2.5	2.5	2.6	10.3	12.4	12.5	12.7	47.9
PHILLIPS	11.2	11.4	11.6	11.9	46.3	58.9	59.5	60.7	225.6
PONDERA	15.8	15.9	16.0	16.2	64.2	80.6	81.4	82.9	309.1
POWDER RIVER	16.1	15.8	15.6	15.3	63.0	80.6	88.5	97.3	329.5
POWELL	9.0	9.2	9.4	9.7	37.5	48.9	52.8	58.5	197.9
PRAIRIE	5.0	5.2	5.3	5.4	21.0	26.4	26.6	27.1	101.2
RAVALLI	15.1	15.2	15.4	15.5	61.4	81.3	89.4	99.0	331.3
RICHLAND	19.7	19.9	20.2	20.4	80.4	103.7	111.1	123.1	418.5
ROOSEVELT	17.3	17.8	18.4	18.9	72.7	96.3	103.4	114.5	386.9
ROSEBUD	18.9	19.3	19.8	20.3	78.5	103.2	110.6	122.2	414.7
SANDERS	15.2	15.8	16.6	17.3	65.1	90.1	98.3	108.7	362.3
SHERIDAN	12.3	12.6	12.8	13.0	50.9	64.8	65.5	66.7	248.0
SILVER BOW	48.2	50.9	53.6	56.5	209.4	284.2	288.0	294.4	1076.1
STILLWATER	9.6	9.8	10.1	10.4	40.1	51.4	51.9	52.9	196.4
SWEET GRASS	6.9	7.0	7.1	7.3	28.5	35.8	36.2	36.9	137.6
TETON	14.3	14.5	14.7	14.9	58.6	74.5	75.2	76.6	285.0
TOOLE	16.7	16.9	17.2	17.5	68.5	87.3	88.1	89.7	333.8
TREASURE	2.7	2.8	2.9	3.0	11.7	14.5	14.6	14.9	55.9
VALLEY	17.7	18.0	18.3	18.5	72.8	92.7	93.8	95.8	355.2
WHEATLAND	5.1	5.2	5.4	5.5	21.4	27.0	27.3	27.8	103.7
WIBAUX	9.0	9.6	10.3	11.0	40.1	54.4	54.8	55.7	205.2
YELLOWSTONE	115.9	119.0	122.1	125.3	482.5	661.0	724.3	802.0	2670.0

3. Forecast Methodology of City-Town Taxable Property Valuation

The forecast of taxable valuations shown in Table VI-28, which served as the basis for airport mill levy estimates was developed according to the following method. As with the county forecasts it was assumed, as the historical data demonstrates, that taxable valuation growth rates will continue to be closely related to population growth rates.

The cities and towns were first divided into two classes:

1) larger 22 cities for which Menasco-McGuinn Associates have forecast 1990 population,

2) remaining smaller towns and cities.

Then for the larger cities, seven annual growth rate factors for taxable valuation, ranging from 0.5% to 2.5%, were assigned based on an examination of the FY 1969 and FY 1972 taxable valuation data, and projected population growth 1970 - 1990. These growth rate factors were then applied to FY 1972 taxable valuation to obtain forecasts for five year intervals 1977 through 1992.

For the smaller (class 2) towns and cities, ten annual taxable valuation growth rate factors, ranging from 0.25% to 2.5%, were assigned based on an examination of the FY 1969 and FY 1972 taxable valuation data, and the historical population data of 1960 - 1970. To obtain the forecast, these factors were then applied to FY 1972 taxable valuation. Table VI-29 shows the assigned growth rates as they were determined from the available data.

TABLE VI-28

FORECAST OF TAXABLE VALUATION OF MONTANA CITIES & TOWNS IN MILLIONS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
ALBERTON	0.6	0.7	0.7	0.7	2.7	3.7	4.2	4.8	15.4
ANACONDA	5.6	5.7	5.8	5.9	23.0	30.5	32.6	34.9	121.1
BAINEVILLE	0.1	0.1	0.1	0.1	0.5	0.7	0.7	0.7	2.6
BAKER	1.8	1.9	1.9	1.9	7.4	9.5	9.8	10.0	36.7
BEARCREEK	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5
BELGRADE	0.8	0.8	0.8	0.8	3.2	4.3	4.8	5.3	17.5
BELT	0.4	0.4	0.4	0.4	1.5	1.9	2.0	2.1	7.6
BIG SANDY	0.7	0.7	0.7	0.7	2.8	3.7	3.9	4.2	14.5
BIG TIMBER	1.5	1.6	1.6	1.6	6.3	8.3	8.9	9.4	33.0
BILLINGS	62.2	63.2	64.3	65.3	255.0	343.4	373.1	405.3	1376.7
BOULDER	0.6	0.6	0.6	0.6	2.3	3.1	3.4	3.8	12.6
BOZEMAN	13.4	13.8	14.1	14.5	55.8	78.0	88.3	99.9	322.0
BRIDGER	0.5	0.5	0.5	0.5	2.0	2.6	2.7	2.8	10.1
BROADUS	0.7	0.7	0.7	0.7	2.7	3.5	3.7	3.9	13.7
BROADVIEW	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.5	1.9
BROCKTON	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.7
BROWNING	0.7	0.7	0.7	0.7	2.9	3.9	4.1	4.4	15.4
BUTTE	17.6	17.7	17.9	18.0	71.2	92.1	95.6	99.2	358.0
CASCADE	0.4	0.4	0.4	0.4	1.6	2.1	2.2	2.3	8.1
CHESTER	0.9	0.9	0.9	0.9	3.7	4.8	5.1	5.5	19.1
CHINOOK	1.4	1.4	1.4	1.5	5.7	7.5	7.9	8.3	29.3
CHOTEAU	1.5	1.5	1.5	1.5	6.1	7.9	8.2	8.5	30.6
CIRCLE	0.8	0.8	0.8	0.8	3.1	4.0	4.2	4.3	15.6
CYDE PARK	0.1	0.1	0.1	0.1	0.4	0.5	0.6	0.6	2.1
COLUMBIA FALLS	2.3	2.4	2.4	2.4	9.5	12.7	13.7	14.8	50.7
COLUMBUS	1.1	1.1	1.1	1.1	4.5	5.9	6.3	6.7	23.4
CONRAD	14.0	14.3	14.6	14.8	57.7	78.8	87.0	96.1	319.5
CULBERTSON	0.6	0.6	0.6	0.6	2.5	3.3	3.4	3.5	12.8
CUT BANK	3.2	3.2	3.2	3.2	12.8	16.4	16.8	17.3	63.4
DARBY	0.2	0.2	0.2	0.2	1.0	1.3	1.5	1.6	5.3
DEER LODGE	1.9	1.9	1.9	2.0	7.7	9.9	10.2	10.4	38.2
DENTON	0.4	0.4	0.4	0.5	1.8	2.3	2.5	2.6	9.2
DILLION	3.4	3.4	3.5	3.5	13.8	18.6	20.2	21.9	74.5
DODSON	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.5	2.0
DRUMMOND	0.3	0.3	0.3	0.3	1.3	1.7	1.7	1.8	6.5
DUTTON	0.4	0.4	0.4	0.4	1.5	2.0	2.1	2.1	7.7
EAST HELENA	2.1	2.2	2.2	2.2	8.7	11.6	12.5	13.5	46.3
EKALAKA	0.4	0.4	0.4	0.4	1.5	2.0	2.0	2.1	7.6
ENNIS	0.4	0.4	0.4	0.5	1.8	2.4	2.5	2.7	9.3
EUREKA	0.6	0.6	0.6	0.6	2.3	3.1	3.3	3.5	12.3
FAIRFIELD	0.6	0.7	0.7	0.7	2.6	3.5	3.7	3.9	13.7
FAIRVIEW	0.5	0.5	0.5	0.5	2.0	2.6	2.7	2.8	10.2
FLAXVILLE	0.1	0.1	0.1	0.1	0.4	0.6	0.6	0.6	2.1
FORSYTH	1.6	1.7	1.7	1.7	6.7	8.8	9.4	10.0	34.8
FORT BENTON	1.7	1.7	1.7	1.8	6.9	9.2	9.8	10.4	36.2

TABLE VI-28 - CONTINUED -

FORECAST OF TAXABLE VALUATION OF MONTANA CITIES & TOWNS IN MILLIONS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
FROID	0.3	0.3	0.3	0.3	1.1	1.5	1.6	1.7	5.8
FROMBERG	0.2	0.2	0.2	0.2	0.9	1.2	1.2	1.3	4.6
GERALDINE	0.3	0.3	0.3	0.3	1.4	1.9	2.1	2.3	7.5
GLASGOW	4.7	4.7	4.8	4.8	19.0	24.2	24.9	25.5	93.5
GLENDIVE	5.4	5.4	5.4	5.4	21.6	27.6	28.3	29.0	106.4
GRASS RANGE	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	1.4
GREAT FALLS	53.3	54.1	54.9	55.7	218.1	291.5	314.1	338.3	1162.0
HAMILTON	2.5	2.5	2.6	2.6	10.2	13.3	13.9	14.7	52.0
HARDIN	2.6	2.6	2.6	2.7	10.4	13.8	14.8	15.8	54.7
HARLEM	0.6	0.6	0.6	0.6	2.4	3.1	3.3	3.4	12.2
HARLOWTON	1.0	1.0	1.0	1.0	4.0	5.2	5.4	5.6	20.1
HAVRE	7.8	7.9	7.9	8.0	31.6	40.8	42.4	44.0	158.8
HELENA	21.2	21.5	21.8	22.0	86.4	114.7	122.5	130.9	454.5
HINGHAM	0.1	0.1	0.1	0.1	0.5	0.7	0.7	0.7	2.6
HINSDALE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOBSON	0.1	0.1	0.1	0.1	0.6	0.7	0.7	0.7	2.7
HOT SPRINGS	0.4	0.4	0.4	0.4	1.5	1.9	2.0	2.1	7.5
HYSHAM	0.3	0.3	0.3	0.3	1.3	1.7	1.8	1.9	6.7
ISMAY	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5
JOLIET	0.2	0.2	0.2	0.2	1.0	1.2	1.3	1.3	4.8
JORDAN	0.4	0.4	0.4	0.4	1.6	2.1	2.2	2.3	8.2
JUDITH GAP	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.4	1.3
KALISPELL	10.6	10.7	10.8	10.9	43.1	56.3	59.2	62.2	220.7
KEVIN	0.4	0.4	0.4	0.4	1.6	2.1	2.3	2.4	8.4
LAUREL	2.7	2.7	2.8	2.8	11.0	14.6	15.6	16.7	58.0
LAVINA	0.1	0.1	0.1	0.1	0.4	0.5	0.6	0.6	2.1
LEWISTOWN	5.8	5.8	5.8	5.9	23.3	29.8	30.5	31.3	114.9
LIBBY	2.9	2.9	3.0	3.0	11.9	16.0	17.4	18.9	64.2
LIMA	0.2	0.2	0.2	0.2	0.6	0.8	0.8	0.9	3.2
LIVINGSTON	5.8	5.9	5.9	5.9	23.5	30.0	30.8	31.5	115.7
LODGE GRASS	0.2	0.2	0.2	0.2	0.9	1.2	1.3	1.3	4.7
MALTA	1.8	1.9	1.9	1.9	7.5	9.7	10.0	10.4	37.5
MANHATTAN	0.6	0.6	0.6	0.6	2.5	3.3	3.6	3.8	13.2
MEDICINE LAKE	0.2	0.2	0.2	0.2	0.8	1.0	1.0	1.0	3.8
MELSTONE	0.1	0.1	0.1	0.1	0.5	0.6	0.7	0.7	2.5
MILES CITY	7.3	7.3	7.4	7.4	29.4	38.0	39.4	41.0	147.8
MISSOULA	27.4	27.9	28.4	28.8	112.5	151.5	164.6	178.8	607.4
MOORE	0.2	0.2	0.2	0.2	0.7	1.0	1.1	1.2	4.0
NASHAUA	0.3	0.3	0.3	0.3	1.3	1.6	1.7	1.7	6.3
NEINHART	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.5	1.7
OPHEIM	0.2	0.2	0.2	0.2	0.7	0.8	0.8	0.8	3.2
OUTLOOK	0.1	0.1	0.1	0.1	0.3	0.4	0.4	0.4	1.5
PHILIPSBURG	0.6	0.6	0.6	0.6	2.4	3.1	3.3	3.4	12.2
PLAINS	0.9	0.9	1.0	1.0	3.8	5.2	5.7	6.3	21.1
PLENTYWOOD	1.9	1.9	2.0	2.0	7.7	[illegible]	[illegible]	12.9	42.8

TABLE VI-28 - CONTINUED -

FORECAST OF TAXABLE VALUATION OF MONTANA CITIES & TOWNS IN MILLIONS OF 1972 DOLLARS

CITY	1974	1975	1976	1977	74-77 TOT	78-82 TOT	83-87 TOT	88-92 TOT	GRAND TOT
PLEVNA	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.6	2.0
OPLSON	2.0	2.1	2.1	2.1	8.3	11.1	11.8	12.6	43.8
POPLAR	0.8	0.8	0.8	0.8	3.2	4.2	4.3	4.5	16.3
RED LODGE	1.5	1.5	1.5	1.5	6.0	7.7	8.0	8.3	30.0
RICHEY	0.3	0.3	0.3	0.3	1.2	1.6	1.7	1.8	6.2
RONAN	0.8	0.8	0.8	0.8	3.0	3.9	4.0	4.1	14.9
ROUNDUP	1.5	1.5	1.5	1.5	6.0	7.9	8.4	8.9	31.1
RYEGATE	0.2	0.2	0.2	0.2	0.7	1.0	1.1	1.1	3.9
SACO	0.2	0.2	0.2	0.2	0.7	0.9	1.0	1.0	3.6
SCOBEY	1.0	1.0	1.0	1.0	4.1	5.2	5.2	5.3	19.8
SHELBY	2.7	2.7	2.7	2.7	10.7	13.7	14.0	14.4	52.7
SHERIDAN	0.5	0.5	0.5	0.5	1.9	2.5	2.7	2.9	9.9
SIDNEY	3.8	3.9	3.9	4.0	15.5	20.6	22.0	23.5	81.8
STANFORD	0.6	0.6	0.6	0.6	2.4	3.3	3.5	3.8	13.0
STEVENSVILLE	0.6	0.6	0.6	0.6	2.4	3.2	3.4	3.7	12.6
ST. IGNATIUS	0.4	0.4	0.4	0.4	1.5	2.0	2.2	2.4	8.1
SUNBURST	0.3	0.3	0.3	0.3	1.3	1.8	1.9	2.2	7.2
SUPERIOR	0.6	0.6	0.6	0.6	2.5	3.2	3.4	3.5	12.6
TERRY	0.8	0.8	0.9	0.9	3.4	4.5	4.8	5.1	17.9
THOMPSON FALLS	0.9	0.9	0.9	1.0	3.7	5.0	5.4	5.8	19.9
THREE FORKS	0.8	0.8	0.8	0.8	3.2	4.3	4.6	4.9	17.0
TOWNSEND	0.9	0.9	0.9	0.9	3.6	4.7	5.0	5.3	18.6
TROY	0.4	0.5	0.5	0.5	1.8	2.4	2.6	2.8	9.7
TWIN BRIDGES	0.3	0.3	0.4	0.4	1.4	1.9	2.0	2.2	7.4
VALIER	0.5	0.5	0.5	0.5	2.2	2.7	2.8	2.8	10.4
VIRGINIA CITY	0.1	0.1	0.1	0.1	0.4	0.6	0.6	0.7	2.3
WALKERVILLE	0.5	0.5	0.5	0.5	2.2	2.8	2.9	3.0	10.9
WESTBY	0.1	0.1	0.1	0.1	0.4	0.5	0.5	0.5	2.0
WEST YELLOWSTONE	1.3	1.3	1.3	1.3	5.2	6.9	7.4	8.0	27.5
WHITEFISH	2.3	2.3	2.3	2.3	9.3	12.0	12.4	12.9	46.5
WHITEHALL	0.6	0.6	0.6	0.6	2.4	3.2	3.4	3.5	12.5
WHITE SULPHUR SPRG	0.8	0.8	0.8	0.8	3.2	4.1	4.2	4.4	15.9
WIBAUX	0.5	0.5	0.5	0.5	2.0	2.6	2.7	2.8	10.2
WINIFRED	0.1	0.1	0.1	0.1	0.5	0.6	0.7	0.7	2.5
WINNETT	0.1	0.1	0.1	0.1	0.5	0.7	0.7	0.7	2.7
WOLF POINT	1.8	1.9	1.9	1.9	7.4	9.5	9.7	10.0	36.6

TABLE VI-29
AVERAGE ANNUAL GROWTH RATES ASSIGNED TO TAXABLE VALUATION FOR THE MONTANA CITIES AND TOWNS

I. For the 22 largest cities

If taxable valuation in 1972 dollars shows 1968 through 72 growth of...	...and population growth 1970-90 is...	...then the assigned average annual growth in taxable valuation through 1992 is...
greater than 20%	greater than 50%	2.5%
greater than 20%	less than 50%	2.0%
10% to 20%	greater than 50%	1.67%
10% to 20%	less than 50%	1.33%
less than 10%	greater than 50%	1.00%
less than 10%	0% to 50%	0.75%
less than 10%	less than 0%	0.50%

II. For the smaller towns

If taxable valuation in 1972 dollars shows 1968 through 72 growth of ...	...and population growth 1960-70 is..	...then the assigned average annual growth in taxable valuation through 1992 is ...
greater than 50%	greater than 0%	2.5%
greater than 50%	less than 0%	2.0%
25% to 50%	greater than 0%	2.0%
25% to 59%	less than 0%	1.5%
10% to 25%	greater than 0%	1.5%
10% to 25%	less than 0%	1.25%
0% to 10%	greater than 0%	1.00%
0% to 10%	less than 0%	0.75%
less than 0%	greater than 0%	0.50%
less than 0%	less than 0%	0.25%

4. Forecast Methodology for Personal Property Tax on Aircraft

Personal property tax was projected on the basis of the trend established for the 1961 - 1972 period. The average tax mill of 190 for the same historical period was applied uniformly to the projected taxable valuation of aircraft personal property.

G. Conclusions

The Montana State Airport System needs, totaling some $36 million of local funds, cannot be fully financed under current funding procedures due principally to statutory limitations on tax bases and tax rates. To provide the airport facility improvements required by growing demand, it is essential that changes in existing tax and revenue related statutes be sought.

An evaluation of the state fiscal system and of airport cost and revenue structures, indicates that the following factors are obstructing necessary funding:

- the limit of a 2 mill airport levy
- lack of state revenue sources
- the provision that airport tax revenues may not be accumulated for periods exceeding one year.

To develop the State Airport System Plan effectively, it is recommended that the state actively promote an integrated program of revisions of the aviation related state and municipal laws in order to find new or improved sources of funds.

1. Recommended Financial Plan

It has been determined that the most promising new sources of revenue are:

a) a state personal property tax on aircraft
b) an aviation gas tax increase
c) the state general fund.

The following plan is suggested to meet statewide financial needs: centralize aircraft registration and property tax levies on aircraft, increase the aviation fuel tax to 2¢, and draw upon funds from the state general fund. In this way the state could share the burden of the development costs of airports in the state system and further relieve the burden at the local level. Aircraft personal property taxes which are collected and expended locally for general purposes could then be expended exclusively for the airport system.

An important economic result of the transfer of the personal property tax on aircraft to the state would be a reduction of the costs borne by local governments for locating, assessing and collecting taxes. This would also more nearly assure the registration of all aircraft based in the state.

In view of the rates in other states, a 2¢ aviation fuel tax would not cause an adverse effect on fuel sales.

With these taxes, the state could participate by contributing 50% of the non-Federal share of the costs in all capital expansion programs for all the airports in the state system.

It should be noted that the total revenues to the state expected in 20 years exceed one half of the local funds required for the capital expenditure program. We recommend that the excess revenues be used to replace any state general funds that may have been used for airport grants and then tax be reduced to provide income in balance with the airport needs. A periodic review of the state aviation forecasts at least every 5 years is recommended.

An evaluation of the general financial situation at each airport indicates that, if 50% state participation in the non-Federal local portion of the costs of airport development can be assured, and if tax revenues can be accumulated, then with a few exceptions, an airport levy of up to 4 mills will be sufficient. The mill levy required will in fact be lower than 4 mills for most counties and cities.

It is proposed therefore that after deducting revenues for airport maintenance and operation costs as well as the 50% share of the non-Federal portion of development costs, actual mill levies be determined individually at a point within the 4 mill levy limit so that revenues will not exceed funds needed.

It was found that seven airports have financing requirements that cannot be met with a 4 mill levy and require special financing. One of these airports will require short-term bond financing, but by extending the financing period beyond five years, a local tax levy of 4 mills will return sufficient revenues. The other six airports require special consideration. Each of these airports will require bond financing extending over at least a ten year period. Financial study of fee structures at each airport is recommended and the project plans should be closely evaluated to establish the priorities and economic feasibility.

With these seven exceptions in mind, it is concluded that the financial needs of the State Airport System Plan can be met if Federal funds are provided as required and matched by local funds and the following legislative action is obtained.

1. Adoption of a program of state aid for airport development which would provide grants to local governments of up to one-half of the local funds required. This program could be financed by revenues from the following sources if they can be accumulated for up to five years:
    a. Increased current state aviation fuel tax from one cent to two cents per gallon;
    b. Collection at the state level of all revenues from personal property taxes on aircraft and use of these funds for airport development;

c. Provision of amounts from the state general fund to supplement the above up to $3.5 million between now and 1977.

2. Increase of the authorized tax levy for establishment and operation of airports, by counties, cities or towns from two mills to four mills, and permit up to five years of funds to be accumulated.

VII. PLAN IMPLEMENTATION

The purpose of this chapter is to recommend a program for implementing the proposed Montana State Airport System Plan. Implementation is discussed within the context of the applicable financial, legislative, environmental, and physical constraints. Each constraint is reviewed below.

A. Financial Constraints

In Chapter VI, the Consultant developed a set of recommendations for physical improvements for each airport under the assumption that federal aid for the qualified airport facility items will be available if funds are matched by the state and local governments. These recommendations are based on the needs as defined by the study and upon Federal Aviation Administration engineering standards and airport facilities criteria.

As indicated in the previous chapter the general conclusion was that under the existing system the tax revenues currently available to both the State and to the local governments together are not adequate to meet the nonfederal funds required to implement the recommended Montana State Airport System Plan. Two alternative recommendations were made, both of which provided for an increase in local airport tax revenues. In this chapter the third alternative implementation plan is introduced. This plan assumes that there would be no more annual federal funds than those currently allocated for the state of Montana for the study period. In this plan, the same allocation criteria applied to air carrier and general aviation airports are assumed. The plan based on the constant annual level of federal funds is selected as a representative and more realistic alternative at this time out of infinite possible plans which can be made up by varying implementation phases of required facility improvements and corresponding financing requirements for federal aid and the state and local matching funds.

Presented below are these two alternate plans recommended in the previous chapter:

Alternative 1. That the State participate to the extent of 50% of the local funding requirements of the airport development costs. The state funds could be financed by revenues if they can be accumulated for up to five years from the following prospective sources:

a. The current State aviation fuel tax increased from one cent to two cents per gallon.

b. Personal property taxes on aircraft collected at the State level and used for airport development.

c. Amounts provided from the State general fund to supplement the above to the extent of $3.1 million between now and 1977.

Local community contribution to the local fund requirement could with some exceptions, discussed in detail later, be financed by (1) increasing the authorized tax levy for establishment and operation of airports, by counties, cities or towns from two mills to four mills; and (2) permitting up to ten years of funds to be accumulated.

Alternative 2. This alternative is the same as Alternative 1, with the exception that no contribution from the State general fund is assumed.

1. Implementation under Alternative 1

As is shown in Table VII-1, 50 percent of the local fund requirement for implementing the Montana State Airport System Plan could be met during 1974-1977 with $3.1 million from the State general fund and financed thereafter with only the revenues from the property and fuel taxes as described above. This conclusion requires that an adequate level of Federal funds are available, and that fifty percent (50%) of local matching funds be provided by the airport owner. It requires also that legislative changes be made to accomplish the following results.

a. A transfer of the aircraft personal property tax is made to the State from local governments, and these funds used for grants to local governments for airport development.

b. Aviation fuel tax is raised from one cent to two cents per gallon.

c. Local real property tax levies of up to four mills are authorized as needed to provide the remaining 50% of the local funds required.

d. These State and local tax revenues are able to be accumulated for up to 10 years.

The Consultant's analysis limited the maximum local mill levy to be considered to four mills as this rate will provide enough funds to meet the needs as described in c. above for the large majority of the airports. The actual rate as required to meet the need will vary by county, by city, and by year. Although the mill rate is recommended initially to be a maximum of four mills, it can decline substantially after 1977, because most airport development costs are heavily concentrated during the

TABLE VII-1

COMPARATIVE ANALYSIS OF STATE REVENUES AVAILABLE AND LOCAL FUNDS REQUIRED TO IMPLEMENT THE MONTANA STATE AIRPORT SYSTEM PLAN

Period	Item	Local Funds Required ($000)			State Funds ($000)		
		Landside	Airside	Total	Prospective Revenues Available 1/	Required Amount with 50% of Local Funds Provided by State	Deficiency or Surplus
1974-77	AC	11,877	4,823	16,700			
	GA	1,035	2,508	3,543			
	Total	12,912	7,331	20,243	6,987	10,122	(3,135)
1978-82	AC	2,663	2,442	5,105			
	GA	189	150	339			
	Total	2,852	2,592	5,444	10,319	2,722	7,597
1983-87	AC	2,429	1,151	5,380			
	GA	189	459	648			
	Total	2,618	1,610	4,228	12,072	2,114	9,958
1988-92	AC	2,635	92	2,727			
	GA	222	189	411			
	Total	2,857	281	3,138	14,450	1,569	12,881
TOTAL	AC	19,604	8,508	28,112			
	GA	1,635	3,306	4,941			
	Total	21,239	11,814	33,053	43,828	16,527	27,301

1/ With two sources of funds, namely aircraft personal property tax, and 2¢ per gallon tax on aviation fuel. This figure excludes the amount of $3.1 million from the state general fund.

AC: Air Carrier Airports
GA: General Aviation Airports

Source: Table VI-8, Table VI-9 and Table VI-13.

first period of 1974-1977. Under this mill levy recommendation it was found that seven airports have financing requirements that cannot be met with a four mill levy and will require special financing. These airports are Lewistown, Helena, Missoula, Butte, Chinook, Harlem and Turner.

Individual recommendations in Appendix II, No. 3, indicate these airports will require bond financing extending over at least 10 year periods. It is also found that Butte would require bond financing with four mill levies over a 20 year period. A detailed financial study of the fee structures at each airport is recommended. Also each airport project should be studied in detail to determine its priority and economic feasibility. These detailed studies will also define which projects should be privately financed.

All other airports can finance their local share of the non-federal funds required, with mill levies of less than four mills, assuming a 50 percent contribution by the State.

2. Implementation Under Alternative 2

Alternative 2 assumed that there would be no additions from the State general funds. The only sources of revenues will be the personal property tax on aircraft accruing to the State as described above and the two cents per gallon aviation fuel tax. Under this plan, only about $7 million will be available to the State during the 1974-1977 period to apply against an amount of $20 million in non-federal development costs, half of which, $40 million, is the State aid needed.

With the demand for State aid funds in excess of those available, the State could reduce its participation from 50 percent to 35 percent of local matching funds to spread the monies equally to all projects. It was found, however, that this would not solve the problem because local communities would not be able to raise their contribution enough to make up the difference.

In order to assure a maximum of airport development a method must be defined for establishing the priority of one project over another.

Three priority guides are recommended for allocating State airport development funds to individual airports:

(1) The available State aid fund allocation should follow the federal criteria of fund allocation between air carrier and general aviation airports. At the present time approximately 76 percent of the total Federal Airport Development Aid Funds is allocated to the airline airports in Montana and the remaining 24 percent allocated to general aviation airports.

(2) Development projects related to the safety and efficiency of aircraft operations have priority over those related to convenience. In general, airside facilities are more related to safety and efficiency of aircraft operations than terminal and hangar developments which are more related to convenience.

The facilities which should get high priority are:

- Fire and emergency building and equipment
- Purchase of land for airport development
- Runways and taxiways
- Navigational and landing aids
- Other airfield improvements
- Access roads
- Utility systems

The areas of less priority are:

- Terminal
- Hangar
- Auto Parking
- Other commercial areas within the airport

(3) For air carrier airports, the level of projected enplanements is recommended as priority criteria. Specific priority determination for general aviation airports should be made by applying Aeronautical Demand Factor (ADF) points for each airport, for each period.

ADF points are used as a priority rating because they incorporate levels of activities projected for each airport, which in turn were determined by selected demographic and economic indicators.

As was shown in Table VII-1 the total local matching funds required for airside and landside facilities during the initial period 1974-77 are $16.7 million for airline airports and $3.5 million for general aviation airports.

The state aid portion of these local fund requirements based on 50% participation, would be $8.3 million for airline airports and about $1.8 million for general aviation airports.

The estimated revenues to the State are $7 million during the initial period. If distributed on the basis of 76% to airline airports and 24% to general aviation airports this would provide $5.32 million for airline and $1.68 million for general aviation airports.

It is recommended that these amounts be allocated to the respective airports in accordance with the first two priority guide criteria set forth above.

The balance of the local funds for priority projects can be raised by most communities with a mill levy increase of up to four mills. Certain locations as discussed earlier would require bond financing in addition to the increased mill levy.

3. Implementation under Alternative 3. This alternative assumes that there will not be an adequate level of Federal funds available even if local matching funds are provided. Specifically Alternative 3 is developed under the assumption that the current level of federal funds made available to the State of Montana would remain constant throughout the entire planning period. Currently $1.9 million and $0.6 million are allocated on an annual basis respectively to air carrier and general aviation airports in Montana.

The Alternative 3 implementation plan is developed on the basis of the priority guidelines discussed under Alternative 2 above. This plan is derived from an iterative process of balancing federal funds required with the federal funds available shown in Table VII - 2 by shifting recommended airport development projects under Alternative 1 from one phase to another successively. One exception made to this shifting process is that development plans already adopted by master plan studies, namely for Bozeman, Great Falls and Missoula are incorporated without changes as their plans are already in the implementation stage.

Presented in Table VII - 2 are the summary results of the implementation plan under Alternative 3 as compared with the federal funds available for air carrier and general aviation airports.

TABLE VII - 2

Summary Results of Implementation Plan under Alternative 3
(in millions of dollars)

	Federal Funds Available		Federal Funds Required*	
Airports	Air Carrier	General Aviation	Air Carrier	General Aviation
1974-77	7.60	2.40	7.60	2.34
1978-82	9.50	3.00	9.49	2.99
1983-92	19.00	6.00	19.77	3.03

* There are slight discrepancies in totals due to rounding.

For both air carrier and general aviation airport categories, the federal funds required closely match those available for the short, intermediate and long-range plan, with an exception that there is an excess of $770,000 required over the total available during the 1983-92 period. Since the emphasis is placed on development plans during the short and intermediate periods, no attempt is made to isolate facility items which may be planned after 1992. General aviation airport development requirements over the study periods are well within the current level of federal aid when spread over the entire period.

Detailed item by item implementation plans by airport and by implementation stages are presented at the end of this chapter for all 99 airports owned and operated by the state and municipalities. Air carrier airports are presented in Tables VII - 3 through VII - 17 and general aviation airports in Tables VII - 18 through VII - 101, presented at the end of this Section.

As far as state and local financing plans are concerned, earlier recommendations under Alternatives 1 and 2 still stand, mainly due to the fact that the state of Montana requires additional funds to aid airports in the MSASP and that local government's maximum mill levy required is still 4 mills because there are airports which require financing over 10 to 15 years as discussed earlier.

Though it has been noted that the overall revenues to the State expected in 20 years as presented in Section VI will exceed one-half of the local funds required for the capital expenditure program, it is recommended that the taxes be reviewed every five years to assure that the levies accruing to the State match the need, but do not exceed it.

The scope of the financing plan should be confined to 10-year periods. Because of changing technology, a review of forecasts and plans, revenues and costs should be made at least every five (5) years.

B. Legislative Constraints

The foregoing recommendations for implementation of the State Airport System Plan with a State airport development aid program for public airports would require legislative action by the State of Montana. It is recommended that this be done, in order to provide the matching funds needed to effectively utilize the monies now being collected by the Federal Government and allocated to the State for the Federal Airport Development Aid Program, and to assure the continuing compatability of the airports and the communities.

The recommended State legislative actions required to meet the financial needs of the State Airport System Plan as discussed in Section A and other needs outlined above are summarized as follows:

1. Adopt a program of State Aid for airport development which would provide grants to local governments of up to one-half of the local funds required.

This program could be financed by revenues if they can be accumulated for up to ten years, from the following prospective sources:

   a. The current State Aviation fuel tax increased from one cent to two cents per gallon.

   b. The collection at the State level of all revenues from personal property taxes on aircraft and use of these funds for airport development.

2. Increase the authorized tax levy for establishment and operation of airports, by counties, cities or towns from two mills to four mills; and permit up to five years of funds to be accumulated.

3. Provide for land use zoning around airports.

This latter item recommended for legislative action by the State is to provide for land use zoning around airports to assure both continued utility of the airport and its compatibility with the surrounding community. This matter is similar to hazard zoning now in effect which makes possible legislation to allow local governments to provide zoning protecting the airport's aerial approaches from obstructions.

The environmental impact of an airport on its surrounding communities should be included as a subject related to land use zoning considerations so as to assure the continued compatability of the airport with the community.

C. Environmental Constraints

Few airports in the recommended Montana State Airport System Plan have serious environmental problems, but to assure the continued utility of the airport, the environmental aspect must be given careful study and evaluation. Specific problems have been discussed in Appendix I, No. 3. It is important to note that land acquisition and land use zoning have been recommended both for airports that are now sensitive, and for other airports which are expected to become sensitive to prevent incompatible land uses from developing.

The importance of this recommendation of the implementation plan cannot be overemphasized. The master planning for each airport must thoroughly consider future environmental impacts. The opportunity is great at most airports in Montana to secure adequate land by fee acquisition or easement, or to obtain proper land use zoning to avoid encroachment on presently vacant land which could become a detriment to airport development if occupied by incompatible uses.

D. Physical Constraints

Because of mountainous terrain, some airports are confronted with severe physical constraints, resulting in high landing minima and reduced reliability of service. Detailed master planning and site selection studies for airports requiring use during Instrument Flight Rules conditions should include a complete analysis of the annual and monthly wind and weather pattern with respect to ceiling and visibility minima. This will provide the basic data to establish the requirements for landing aids and assure annual utility at the level required for effectively meeting the aeronautical need.

Some physical constraints which lower current operating minima can be overcome by instituting special studies, during master planning, which develop approach procedures that would allow lower landing minima than are possible with the application of the standard Federal Aviation Administration criteria. This can be accomplished by airport owners in co-operation with scheduled air carriers, supplying the Federal Aviation Administration with substantive facts. They can then be petitioned to review the procedures in effect and may be able to establish new procedures for selected aircraft, thus allowing lower landing minima. The result will be a higher degree of scheduled airline service reliability.

At a number of Montana airports, future airport requirements disclose physical limitations that are related to the land area available for the development of runway, passenger terminal, and hangar facilities. Detailed master planning is required and must include the long term requirements to assure that investments being made in near term facilities can be expanded to meet 1992 requirements.

TABLE VII- 3

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BILLINGS			
1974-1977			
LAND ACQUISITION	90.0	71.5	18.4
AC AUTO PKG AREA	164.3	0.0	164.3
FIRE & EMERG BLDG & EQP	78.9	63.8	15.1
TOTAL	333.2	135.3	197.8
1978-1982			
EXTEND R W (9-27)			
EARTHWORK	33.0	26.2	6.7
EASEMENTS	4.5	3.5	0.9
SITE PREP.	45.0	35.7	9.2
DRAINAGE	5.0	3.9	1.0
PAVING	385.0	305.9	79.0
LANDING AIDS R/W(9-27)			
VASI 2 EACH	40.0	31.7	8.2
AC TERM BLDG, APRON AREA	1720.0	43.7	1676.3
AC AUTO PKG AREA	79.0	0.0	79.0
GA AUTO PKG AREA	104.8	0.0	104.8
TOTAL	2416.3	450.9	1965.3
1983-1992			
PARALLEL G. A. RUNWAY			
EARTHWORK	30.0	23.8	6.1
PAVING	390.0	309.8	80.1
ACCESS ROAD TO NEW AREA	24.0	0.0	24.0
RELOC.HANGARS,ADD APRONS	1500.0	1191.8	308.1
AC TERM BLDG, APRON AREA	1646.7	57.1	1589.6
AC AUTO PKG AREA	103.6	0.0	103.9
AC MAINT BLDG & APRON	67.4	53.6	13.8
GA TERM,HANGAR,APRON,ETC	296.1	96.1	200.0
GA AUTO PKG AREA	51.9	0.0	51.9
GA MAINT BLDG & APRON	69.0	42.9	26.1
TOTAL	4178.6	1775.3	2403.6
TOTAL PROJECT COSTS	6928.1	2361.5	4566.9

TABLE VII- 4

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BOZEMAN			
1974-1977			
LAND PURCHASE	100.0	79.4	20.5
ACCESS ROADS	20.0	0.0	20.0
SOUTHWEST PARKING	139.7	0.0	139.7
AIR CARRIER APRON	841.4	668.6	172.8
PARALLEL T/W,EAST END	600.0	476.7	123.2
SECURITY FENCE	25.0	19.8	5.1
AUTO PARKING(PRIVATELY)			
G.A. BUILDINGS	125.0	0.0	125.0
TOTAL	1851.2	1244.6	606.5
1978-1982			
PAVE G.A. APRON	264.0	209.7	54.2
TERMINAL BLDG	1802.0	0.0	1802.0
WATER TANK	143.1	113.7	29.3
SEWER LINE	78.4	0.0	78.4
UTILITY LINE	95.4	75.8	19.6
TERMINAL ACCESS ROAD	78.9	62.7	16.2
EXTEND RUNWAY(1500')	442.2	351.3	90.8
HI. LIGHTS	109.5	89.8	19.7
MOVE ILS	59.5	47.3	12.2
EXTEND TAXIWAY(1500')	413.7	328.7	84.9
SECURITY FENCE	70.0	55.6	14.3
LAND PURCHASE	50.0	39.7	10.2
PAVE RUNWAY SHOULDERS	223.5	177.6	45.9
TOTAL	3830.5	1552.3	2278.2
1983-1992			
WIDEN TAXIWAY	336.5	267.4	69.1
FARM ROAD RELOCATION	308.1	244.8	63.2
RUNWAY OVERLAY	512.0	406.8	105.1
PARALLEL T/W WEST	594.0	471.9	122.0
TAXIWAY OVERLAY	458.0	363.9	94.0
PARALLEL RUNWAY	258.0	205.0	52.9
TERMINAL AREA ADDITIONS			
BUILDING	676.0	0.0	676.0
AIR CARRIER APRON	1070.0	850.2	219.7
TOTAL	4212.7	2810.2	1402.4
TOTAL PROJECT COSTS	9894.5	5607.3	4287.1

TABLE VII- 5

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BUTTE			
1974-1977			
LAND ACQUISITION	300.0	238.3	61.6
AC AUTO PKG AREA	80.1	0.0	80.1
FIRE & EMERG BLDG & EQP	79.0	63.9	15.1
TOTAL	459.1	302.2	156.8
1978-1982			
AC TERM BLDG, APRON AREA	1133.9	0.0	1133.9
AC AUTO PKG AREA	18.0	0.0	18.0
GA AUTO PKG AREA	40.3	0.0	40.3
TOTAL	1192.1	0.0	1192.1
1983-1992			
MAIN RUNWAY			
SITE PREPARATION	150.0	119.1	30.8
PAVING	2176.1	1729.1	446.9
SECOND RUNWAY			
SITE PREPARATION	60.0	47.6	12.3
PAVING	603.0	479.1	123.8
MAIN PARALLEL TAXIWAY			
SITE PREPARATION	60.0	47.6	12.3
PAVING	960.0	762.8	197.1
SECOND PARALLEL TAXIWAY			
SITE PREPARATION	18.0	14.3	3.6
PAVING	204.0	162.0	41.9
TERMINAL AREA			
REPLACE EX. A. C. APRON	252.0	200.2	51.7
PARKING	18.0	0.0	18.0
MAINT. BLDG	9.0	0.0	9.0
GA APRON	264.0	209.7	54.2
HANGARS	630.0	0.0	630.0
AC. TERMINAL	330.0	0.0	330.0
NAVAIDS			
ILS	350.0	350.0	0.0
TVOR	45.0	45.0	0.0
LANDING AIDS			
MIRL (TWO RWS)	140.8	111.8	28.9
VASI	4.0	3.1	0.8
REILS	8.0	6.3	1.6
ROAD RELOCATION	265.6	0.0	265.6

TABLE VII- 5 (continued)
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BUTTE			
UTILITIES & SEWER	60.0	47.6	12.3
AC TERM BLDG, APRON AREA	393.7	0.0	393.7
AC AUTO PKG AREA	28.7	0.0	28.7
FIRE & EMERG BLDG & EQP	67.0	54.4	12.6
GA TERM,HANGAR,APRON,ETC	102.5	34.9	67.6
GA AUTO PKG AREA	8.3	0.0	8.3
GA MAINT BLDG & APRON	8.6	5.4	3.2
TOTAL	7216.3	4430.8	2785.4
TOTAL PROJECT COSTS	8867.6	4733.1	4134.4

TABLE VII- 6
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
GLASGOW			
1974-1977			
ADD ILS	350.0	350.0	0.0
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	404.9	394.6	10.2
1978-1982			
VASI	15.0	11.9	3.0
AC TERM BLDG, APRON AREA	17.4	0.0	17.4
GA AUTO PKG AREA	51.1	0.0	51.1
TOTAL	83.5	11.9	71.5
1983-1992			
RECONSTRUCT RW(12/30)	1500.0	1191.8	308.1
AC TERM BLDG, APRON AREA	56.4	0.0	56.4
AC MAINT BLDG & APRON	7.7	6.1	1.6
GA TERM,HANGAR,APRON,ETC	114.0	29.2	84.8
GA AUTO PKG AREA	12.4	0.0	12.4
GA MAINT BLDG & APRON	8.8	5.5	3.2
TOTAL	1699.2	1232.6	466.5
TOTAL PROJECT COSTS	2187.6	1639.3	548.2

TABLE VII- 7

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
GLENDIVE			
1974-1977			
VASI	15.0	11.9	3.0
VOR	45.0	45.0	0.0
AC AUTO PKG AREA	0.5	0.0	0.5
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	115.4	101.6	13.7
1978-1982			
WIDEN R/W(2-20)			
EARTHWORK	3.0	2.3	0.6
ADD MIRL RW(2-20)	27.0	21.4	5.5
AC TERM BLDG, APRON AREA	0.3	0.0	0.3
AC AUTO PKG AREA	1.0	0.0	1.0
GA AUTO PKG AREA	25.9	0.0	25.9
TOTAL	57.2	23.8	33.3
1983-1992			
PAVE R/W(2-20)	450.0	357.5	92.4
PAVE TAXIWAY	250.0	198.6	51.3
AC TERM BLDG, APRON AREA	13.0	0.0	13.0
AC AUTO PKG AREA	1.4	0.0	1.4
GA TERM,HANGAR,APRON,ETC	50.4	14.1	36.3
GA AUTO PKG AREA	1.0	0.0	1.0
GA MAINT BLDG & APRON	2.4	1.4	1.0
TOTAL	768.1	571.7	196.4
TOTAL PROJECT COSTS	940.7	697.1	243.6

TABLE VII- 8

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
GREAT FALLS			
1974-1977			
EXTEND RW (16-34)	863.6	686.2	177.3
STRENGTHEN RW(16-34)	1610.7	1279.8	330.8
ILS & ALS	240.0	240.0	0.0
TERMINAL APRON	2023.9	1608.2	415.7
TERMINAL BLDG.	2807.1	0.0	2807.1
TOTAL	7545.4	3814.3	3731.1
1978-1982			
PARA. T W., HOLDING AP.	1899.8	1509.5	390.2
AUTO PARKING	138.5	0.0	138.5
AIRCRAFT PARKING	235.2	186.9	48.3
TOTAL	2273.5	1696.4	577.0
1983-1992			
PARALLEL GA. RUNWAY			
EARTHWORK	39.0	30.9	8.0
SITE PREPARATION	20.0	15.8	4.1
PAVING	360.0	286.0	73.9
MIRL	32.0	25.4	6.5
DRAINAGE	4.0	3.1	0.8
TOTAL	455.0	361.5	93.4
TOTAL PROJECT COSTS	10274.0	5872.3	4401.6

TABLE VII- 9

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HAVRE			
1974-1977			
ADD TAXIWAYS			
EARTHWORK	3.0	2.3	0.6
PAVING	121.0	96.1	24.8
SITE PREPARATION	4.3	3.4	0.8
LAND ACQUISITION	2.6	2.0	0.5
VASI	15.0	11.9	3.0
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	200.7	160.6	40.1
1978-1982			
RECONSTRUCT RW(3/21)	1500.0	1191.8	308.1
AC TERM BLDG, APRON AREA	0.3	0.0	0.3
GA AUTO PKG AREA	32.8	0.0	32.8
TOTAL	1533.0	1191.8	341.2
1983-1992			
AC TERM BLDG, APRON AREA	0.5	0.0	0.5
AC AUTO PKG AREA	1.0	0.0	1.0
AC MAINT BLDG & APRON	4.8	3.9	0.9
GA TERM,HANGAR,APRON,ETC	75.8	22.7	53.1
GA AUTO PKG AREA	8.3	0.0	8.3
GA MAINT BLDG & APRON	5.8	3.6	2.2
TOTAL	96.1	30.1	66.0
TOTAL PROJECT COSTS	1830.0	1382.7	447.3

TABLE VII- 10
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HELENA			
1974-1977			
REPLACEMENT COST(TERML)	60.0	0.0	60.0
AC AUTO PKG AREA	40.2	0.0	40.2✓
FIRE & EMERG BLDG & EQP	63.9	51.9	12.0
TOTAL	164.1	51.9	112.2
1978-1982			
ACCESS RD.(ON ARPT)	130.0	103.2	26.7✓
PARKING	6.0	0.0	6.0
ADD TAXIWAYS	1400.0	1112.4	287.5✓
APRONS	320.0	254.2	65.7
AC TERM BLDG, APRON AREA	1103.4	0.0	1103.4✓
AC AUTO PKG AREA	17.0	0.0	17.0
GA AUTO PKG AREA	122.3	0.0	122.3
TOTAL	3098.7	1470.0	1628.6
1983-1992			
TAXIWAY LIGHTS	60.0	47.6	12.3
PARALLEL GA RUNWAY			
EARTHWORK	20.0	15.8	4.1
MIRL	32.0	25.4	6.5
PAVING	400.0	317.8	82.1
RELOCATE CONTROL TOWER	150.0	150.0	0.0
OVERPLAY R/W (8-26)	450.0	357.5	92.4
AC TERM BLDG, APRON AREA	472.7	0.0	472.7
AC AUTO PKG AREA	38.4	0.0	38.4
AC MAINT BLDG & APRON	3.6	2.9	0.7
GA TERM,HANGAR,APRON,ETC	212.6	30.2	182.4
GA AUTO PKG AREA	20.6	9.1	20.6
GA MAINT BLDG & APRON	14.6	0.0	5.5
TOTAL	1874.4	956.6	917.8
TOTAL PROJECT COSTS	5137.2	2478.5	2658.7

TABLE VII- 11
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

KALISPELL GPI	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
OBSTRUCTION REMOVAL	1.0	0.7	0.2
ADD ILS	350.0	350.0	0.0
DME	30.0	30.0	0.0
MALS	20.0	15.8	4.1
AC AUTO PKG AREA	19.1	0.0	19.1
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	475.0	441.3	33.6
1978-1982			
AC TERM BLDG, APRON AREA	662.0	0.0	662.0
AC AUTO PKG AREA	24.0	0.0	24.0
GA AUTO PKG AREA	74.2	0.0	74.2
TOTAL	760.2	0.0	760.2
1983-1992			
EXTEND RW(1/19)	200.0	158.9	41.0
PARALLEL G.A. RUNWAY			
EARTHWORK	20.0	15.8	4.1
PAVING	350.0	278.1	71.8
MIRL	28.0	22.2	5.7
DRAINAGE	2.0	1.5	0.4
SITE PREPARATION	15.0	11.9	3.0
MIRL	5.5	4.3	1.1
2'' OVERLAY PARALLEL TW	125.0	99.3	25.6
2'' OVERLAY RW(1/19)	260.0	206.5	53.4
2'' OVERLAY A.C. APRON	38.0	30.1	7.8
AC TERM BLDG, APRON AREA	851.9	0.0	851.9
AC AUTO PKG AREA	64.7	0.0	64.7
AC MAINT BLDG & APRON	14.8	11.8	3.0
FIRE & EMERG BLDG & EQP	67.0	54.4	12.6
GA TERM,HANGAR,APRON,ETC	182.2	44.4	137.8
GA AUTO PKG AREA	20.8	0.0	20.8
GA MAINT BLDG & APRON	13.9	8.7	5.2
TOTAL	2258.7	948.4	1310.3
TOTAL PROJECT COSTS	3493.9	1389.8	2104.1

TABLE VII- 12
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LEWISTOWN			
1974-1977			
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	54.9	44.7	10.2
1978-1982			
EXTEND RW(2-20)			
EARTHWORK	3.0	2.3	0.6
SITE PREPARATION	4.0	3.1	0.8
DRAINAGE	1.4	1.1	0.2
PAVING	215.0	170.8	44.1
MIRL	12.6	10.0	2.5
AC TERM BLDG, APRON AREA	0.2	0.0	0.2
AC AUTO PKG AREA	0.6	0.0	0.6
GA AUTO PKG AREA	41.2	0.0	41.2
TOTAL	277.9	187.5	90.4
1983-1992			
ADD TAXIWAY			
EARTHWORK	11.7	9.2	2.4
PAVING	100.0	79.4	20.5
RECONSTRUCT RW(2/20) AND RW(7/25)	2800.0	2224.8	575.1
RECONSTRUCT T/W + APRONS'	1500.0	1191.8	308.1
VASI	15.0	11.9	3.0
AC TERM BLDG, APRON AREA	0.4	0.0	0.4
AC AUTO PKG AREA	1.8	0.0	1.8
AC MAINT BLDG & APRON	12.4	6.8	5.6
GA TERM,HANGAR,APRON,ETC	74.1	23.3	50.8
GA AUTO PKG AREA	7.3	0.0	7.3
TOTAL	4522.6	3547.5	975.1
TOTAL PROJECT COSTS	4855.5	3779.7	1075.8

TABLE VII- 13

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
MILES CITY			
1974-1977			
VASI	15.0	11.9	3.0
FIRE & EMERG BLDG & EQP	54.9	44.7	10.5
TOTAL	69.9	56.6	13.5
1978-1982			
AC TERM BLDG, APRON AREA	10.5	0.0	10.5
GA AUTO PKG AREA	34.7	0.0	34.7
TOTAL	45.2	0.0	45.2
1983-1992			
AC TERM BLDG, APRON AREA	69.9	0.0	69.9
AC AUTO PKG AREA	2.9	0.0	2.9
GA TERM,HANGAR,APRON,ETC	82.0	23.7	58.3
GA AUTO PKG AREA	11.4	0.0	11.4
GA MAINT BLDG & APRON	5.4	3.4	2.0
TOTAL	171.6	27.0	144.5
TOTAL PROJECT COSTS	286.7	83.7	203.2

TABLE VII- 14
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
MISSOULA			
1974-1977			
ACQUIRE LAND FOR CLEAR ZONES	215.0	170.8	44.1
RECON. RW(7/25)	105.0	83.4	21.5
TOTAL	320.0	254.2	65.7
1978-1982			
TERMINAL AREA DEVELOPMNT			
BUILDING EXP.+ RENOV.	1550.0	0.0	1550.0
EXT. TERM. APRON (G-3)	166.0	131.9	34.0
REALGN ACCESS RD + PARKN	40.0	0.0	40.0
STORM SEWER IMPROVEMENT	190.0	0.0	190.0
LANDING AREA DEVELOPMENT			
PARA. TW- RW(11/29)	1104.0	877.2	226.7
PARA. TW TO TW B-2 +EXIT	750.0	595.9	154.0
OVERLAY TW B-3	95.0	75.4	19.5
MIRL RW'S 7/25 + 16/34	210.0	166.8	43.1
CONSTR. ITIN PARKING RMP	80.0	63.5	16.4
RELOCATE WIND CONE	20.0	15.8	4.1
NEW FBO AREA DEVEL.			
SERVICE ROAD	40.0	0.0	40.0
TOTAL	4245.0	1926.9	2318.0
1983-1992			
TERMINAL AREA DEVELOPMNT			
NEW E. PARKING LOT	25.0	0.0	25.0
EXT TERM. APRON (G-4)	640.0	508.5	131.4
LANDING AREA DEVELOPMENT			
PARA. TW'S RW7 , RW 16	580.0	460.8	119.1
CONN. TW	290.0	230.4	59.5
OVERLAY RW'S, TW'S +APNS	920.0	731.0	188.9
PARA TW TO TW B-3	900.0	715.1	184.8
RELOC. FAA TRANSMITTER	55.0	43.7	11.2
G.A. PARA RW(11/29)	346.7	275.5	71.2
TOTAL	3756.7	2965.2	791.5
TOTAL PROJECT COSTS	8321.7	5146.4	3175.3

TABLE VII- 15

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SIDNEY			
1974-1977			
TAXIWAY TURNAROUND	1.5	1.1	0.3
36'' BEACON	5.0	3.9	1.0
VASI	15.0	11.9	3.0
VOR	45.0	45.0	0.0
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	121.4	106.7	14.6
1978-1982			
OVERLAY RUNWAY (10/28)	200.0	158.9	41.0
AC TERM BLDG, APRON AREA	13.8	0.0	13.8
GA AUTO PKG AREA	17.4	0.0	17.4
TOTAL	231.2	158.9	72.2
1983-1992			
AC TERM BLDG, APRON AREA	35.2	0.0	35.2
AC MAINT BLDG & APRON	3.7	2.1	1.6
GA TERM,HANGAR,APRON,ETC	35.3	8.3	27.0
GA AUTO PKG AREA	1.0	0.0	1.0
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	75.5	10.3	65.1
TOTAL PROJECT COSTS	428.2	276.1	152.0

TABLE VII- 16
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WEST YELLOWSTONE			
1974-1977			
ILS	340.0	340.0	0.0
PREP. FOR EXT. R/W (1-19			
EASEMENTS	10.0	7.9	2.0
OBSTRUCTIONS	1.0	0.7	0.2
DRAINAGE	7.0	5.5	1.4
FIRE & EMERG BLDG & EQP	60.9	49.5	11.4
AC AUTO PKG AREA	13.4	0.0	13.4
TOTAL	432.2	403.8	28.4
1978-1982			
EXTEND RW (1-19)			
EARTHWORK	27.0	21.4	5.5
SITE PREPARATION	8.8	6.9	1.8
PAVING	670.0	532.3	137.6
ADD TAXIWAYS			
EARTHWORK	10.0	7.9	2.0
PAVING	300.0	238.3	61.6
AC TERM BLDG, APRON AREA	0.6	0.0	0.6
AC AUTO PKG AREA	11.5	0.0	11.5
GA AUTO PKG AREA	12.7	0.0	12.7
TOTAL	1040.6	807.1	233.4
1983-1992			
AC TERM BLDG, APRON AREA	437.1	0.0	436.1
AC AUTO PKG AREA	33.3	0.0	33.3
AC MAINT BLDG & APRON	0.6	0.5	0.1
GA TERM,HANGAR,APRON,ETC	29.7	9.0	20.7
GA AUTO PKG AREA	7.2	0.0	7.2
GA MAINT BLDG & APRON	4.0	2.5	1.5
TOTAL	511.8	12.0	498.8
TOTAL PROJECT COSTS	1984.7	1222.9	760.8

TABLE VII- 17

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WOLF POINT			
1974-1977			
WIDEN LANDING STRIP			
EARTHWORK	48.0	38.1	9.8
LAND ACQUISITION	1.2	0.9	0.2
FIRE & EMERG BLDG & EQP	54.9	44.7	10.2
TOTAL	104.1	83.7	20.3
1978-1982			
AC TERM BLDG, APRON AREA	32.9	14.5	18.4
GA AUTO PKG AREA	11.8	0.0	11.8
TOTAL	44.6	14.5	30.2
1983-1992			
RUNWAY OVERLAY	97.0	77.0	19.9
AC TERM BLDG, APRON AREA	21.8	0.5	21.3
AC MAINT BLDG & APRON	3.4	1.9	1.5
GA TERM,HANGAR,APRON,ETC	14.9	4.7	10.2
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.9	1.2	0.7
TOTAL	141.0	85.3	55.7
TOTAL PROJECT COSTS	289.8	183.6	106.2

TABLE VII- 18
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
ANACONDA			
1978-1982			
GA AUTO PKG AREA	7.4	0.0	7.4
TOTAL	7.4	0.0	7.4
1983-1992			
OVERLAY RW (4/22)	75.0	59.5	15.4
GA TERM,HANGAR,APRON,ETC	22.2	5.6	16.6
GA AUTO PKG AREA	2.8	0.0	2.8
GA MAINT BLDG & APRON	1.8	1.2	0.6
TOTAL	101.7	66.3	35.4
TOTAL PROJECT COSTS	109.1	66.3	42.8

TABLE VII- 19
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
ASHLAND - NEW			
1978-1982			
SITE NORTH OF EXISTING			
LAND ACQUISITION	11.0	8.7	2.2
SITE PREPARATION	15.0	11.9	3.0
DRAINAGE	12.0	9.5	2.4
UNPAVED ACCESS ROAD	25.0	0.0	25.0
AIRCRAFT PARKING	1.6	1.2	0.3
AUTO PARKING	1.6	0.0	1.6
PAVE RUNWAY	170.0	135.0	34.9
LANDING AIDS			
MIRL	32.0	25.4	6.5
BEACON	5.0	3.9	1.0
NDB	8.0	6.3	1.6
UTILITIES ETC	7.0	0.0	7.0
GA AUTO PKG AREA	9.7	0.0	9.7
TOTAL	297.8	202.3	95.5
1983-1992			
GA TERM,HANGAR,APRON,ETC	19.1	5.3	13.8
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.7	1.1	0.6
TOTAL	22.8	6.3	16.5
TOTAL PROJECT COSTS	320.7	208.7	112.0

TABLE VII- 20

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
AUGUSTA			
1974-1977			
WIDEN LANDING STRIP	2.8	0.0	2.8
TOTAL	2.8	0.0	2.8
1978-1982			
GA AUTO PKG AREA	1.5	0.0	1.5
TOTAL	1.5	0.0	1.5
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.6	0.0	3.6
GA AUTO PKG AREA	1.5	0.0	1.5
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	5.5	0.0	5.5
TOTAL PROJECT COSTS	9.7	0.0	9.7

TABLE VII- 21
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BABB			
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
LANDING AIDS			
MIRL	28.0	22.2	5.7
BEACON	5.0	3.9	1.0
NAVAIDS			
NDB	8.0	6.3	1.6
CROSSWIND RUNWAY	60.0	47.6	12.3
GA TERM,HANGAR,APRON,ETC	10.7	2.9	7.8
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.8	0.1	0.7
TOTAL	113.8	83.2	30.6
TOTAL PROJECT COSTS	116.7	83.2	33.5

TABLE VII- 22
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BAKER			
1974-1977			
LANDING AIDS			
MIRL	38.4	30.5	7.8
BEACON	5.0	3.9	1.0
TOTAL	43.4	34.4	8.9
1978-1982			
GA AUTO PKG AREA	11.9	0.0	11.9
TOTAL	11.9	0.0	11.9
1983-1992			
NAVAIDS			
NDB	8.0	6.3	1.6
OVERLAY RUNWAY(12/30)	66.7	52.9	13.7
OBSTRUCTION REMOVAL	2.0	1.5	0.4
GA TERM,HANGAR,APRON,ETC	26.0	10.8	15.2
GA AUTO PKG AREA	2.2	0.0	2.2
GA MAINT BLDG & APRON	0.6	0.5	0.1
TOTAL	105.5	72.2	33.2
TOTAL PROJECT COSTS	160.7	106.7	54.0

TABLE VII- 23
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BIG SANDY			
1974-1977			
EXTEND RUNWAY(6/24)			
EARTHWORK	9.4	0.0	9.4
LAND ACQUISITION	2.6	0.0	2.6
EASEMENTS	0.8	0.0	0.8
SITE PREP	9.4	0.0	9.4
DRAINAGE	0.5	0.0	0.5
PAVING	29.4	0.0	29.4
LANDING AIDS			
EXTEND LIGHTING SYSTEM	3.8	0.0	3.8
TOTAL	56.0	0.0	56.0
1978-1982			
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	1.4	0.0	1.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.8	0.0	3.8
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.8	0.0	0.8
TOTAL	5.2	0.0	5.2
TOTAL PROJECT COSTS	62.7	0.0	62.7

TABLE VII- 24

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BIG TIMBER			
1974-1977			
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
GA AUTO PKG AREA	9.8	0.0	9.8
TOTAL	9.8	0.0	9.8
1983-1992			
IMPROVE ACCESS ROAD	10.0	7.9	2.0
RUNWAY OVERLAY	97.0	77.0	19.9
GA TERM,HANGAR,APRON,ETC	27.2	10.8	16.4
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.6	0.5	0.1
TOTAL	136.1	96.3	39.8
TOTAL PROJECT COSTS	153.9	102.6	51.3

TABLE VII- 25

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BOULDER			
1974-1977			
EXTEND LANDING STRIP			
LAND ACQUISITION	4.0	0.0	4.0
EASEMENTS	0.8	0.0	0.8
SITE PREP	3.1	0.0	3.1
LAND ACQUISTION	10.2	8.1	2.0
TOTAL	18.1	8.1	10.0
1978-1982			
GA AUTO PKG AREA	2.2	0.0	2.2
TOTAL	2.2	0.0	2.2
1983-1992			
NEW AIRPORT			
SITE PREPARATION	20.4	16.2	4.1
DRAINAGE	12.0	9.5	2.4
ACCESS ROAD	70.0	0.0	70.0
ITIN.AIRC. PARKING	1.6	1.2	0.3
AUTO PARKING	1.6	1.2	0.3
LANDING AID			
MIRL	31.5	25.0	6.4
BEACON	5.0	3.9	1.0
UTILITIES	2.0	1.5	0.4
GA TERM,HANGAR,APRON,ETC	6.5	2.8	3.7
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	151.7	61.7	90.0
TOTAL PROJECT COSTS	172.0	69.8	102.2

TABLE VII- 26

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

BRIDGER	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND RUNWAY(16/34)			
EARTHWORK	22.5	0.0	22.5
LAND ACQUISITION	1.8	0.0	1.8
EASEMENTS	0.8	0.0	0.8
SITE PREP	4.2	0.0	4.2
PAVING	46.6	0.0	46.6
LANDING AIDS			
EXTEND LIGHTING	6.3	0.0	6.3
TOTAL	82.2	0.0	82.2
1978-1982			
GA AUTO PKG AREA	2.2	0.0	2.2
TOTAL	2.2	0.0	2.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.4	0.0	3.4
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.7	0.0	0.7
TOTAL	4.8	0.0	4.8
TOTAL PROJECT COSTS	89.2	0.0	89.2

TABLE VII- 27
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

BROADUS, BROADUS	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
EXTEND RUNWAY(11/29)			
EARTHWORK	4.5	3.5	0.9
LAND ACQUISITION	10.0	7.9	2.0
EASEMENTS	1.2	0.9	0.2
SITE PREP	2.4	1.9	0.4
OBSTRUCTION REMOVAL	1.0	0.7	0.2
DRAINAGE	1.2	0.9	0.2
PAVING	33.4	26.5	6.8
LANDING AIDS			
EXTEND LIGHTING SYSTEM	2.8	2.2	0.5
WIDEN,STRENGTHEN RW, NON PARA + HOLD APRON,ETC	100.0	79.4	20.5
GA AUTO PKG AREA	5.6	0.0	5.6
TOTAL	162.0	124.3	37.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.0	1.9	2.1
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.3	0.8	0.5
TOTAL	6.0	2.7	3.3
TOTAL PROJECT COSTS	168.0	127.0	41.0

TABLE VII- 28

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
BROWNING			
1974-1977			
LANDING AIDS			
MIRL	29.4	23.3	6.0
BEACON	5.0	3.9	1.0
UTILITIES			
POWER	20.0	15.8	4.1
TOTAL	54.4	43.2	11.1
1978-1982			
EXTEND RUNWAY(6/24)			
EARTHWORK	1.5	1.1	0.3
LAND ACQUISITION	3.6	2.8	0.7
EASEMENTS	1.2	0.9	0.2
SITE PREP	6.1	4.8	1.2
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	16.7	9.8	6.9
1983-1992			
NAVAIDS			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	12.0	8.3	3.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.0	0.6	0.4
TOTAL	22.4	15.2	7.1
TOTAL PROJECT COSTS	93.5	68.3	25.2

TABLE VII- 29
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CHESTER			
1974-1977			
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
EXTEND RUNWAY(7/25)			
EARTHWORK	3.6	2.8	0.7
LAND ACQUISITION	1.8	1.4	0.3
EASEMENTS	0.6	0.4	0.1
SITE PREP	4.2	3.3	0.8
OBSTRUCTION REMOVAL	0.4	0.3	0.0
PAVING	26.7	21.2	5.4
LANDING AIDS			
EXTEND LIGHTING SYSTEM	2.8	2.2	0.5
RUNWAY OVERLAY	75.0	59.5	15.4
GA AUTO PKG AREA	8.0	0.0	8.0
TOTAL	123.1	91.5	31.6
1983-1992			
GA TERM,HANGAR,APRON,ETC	16.1	2.4	13.7
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.7	1.1	0.6
TOTAL	19.8	3.5	16.3
TOTAL PROJECT COSTS	151.0	101.3	49.6

TABLE VII- 30
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CHINOOK			
1974-1977			
OBSTRUCTION REMOVAL			
MOVE BUILDINGS	12.5	9.9	2.5
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	20.5	16.2	4.2
1978-1982			
GA AUTO PKG AREA	14.4	0.0	14.4
TOTAL	14.4	0.0	14.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	26.4	9.7	16.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	2.5	1.6	0.9
TOTAL	30.2	11.2	18.9
TOTAL PROJECT COSTS	65.1	27.5	37.6

TABLE VII- 31

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CHOTEAU			
1974-1977			
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
OVERLAY RUNWAY(5/23)	65.0	51.6	13.3
GA AUTO PKG AREA	7.0	0.0	7.0
TOTAL	72.0	51.6	20.3
1983-1992			
GA TERM,HANGAR,APRON,ETC	11.8	1.2	10.6
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.6	1.0	0.6
TOTAL	14.0	2.2	11.8
TOTAL PROJECT COSTS	94.1	60.2	33.8

TABLE VII- 32
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CIRCLE			
1978-1982			
EXTEND RUNWAY(12/30)			
EARTHWORK	3.0	2.3	0.6
EASEMENTS	0.6	0.4	0.1
SITE PREPARATION	0.2	0.1	0.0
DRAINAGE	0.6	0.4	0.1
PAVING	26.8	21.2	5.5
LANDING AIDS			
EXTEND LIRL	4.2	0.0	4.2
GA AUTO PKG AREA	2.5	0.0	2.5
TOTAL	37.9	24.7	13.1
1983-1992			
NAVAIDS			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	82.1	43.3	38.8
GA AUTO PKG AREA	2.9	0.0	2.9
GA MAINT BLDG & APRON	1.4	0.9	0.5
TOTAL	94.3	50.5	43.8
TOTAL PROJECT COSTS	132.2	75.3	56.9

TABLE VII- 33

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CLINTON			
1978-1982			
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	4.4	0.0	4.4
1983-1992			
LANDING AIDS			
BEACON	5.0	0.0	5.0
UTILITIES			
POWER	20.0	0.0	20.0
GA TERM,HANGAR,APRON,ETC	7.0	0.0	7.0
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	0.6	0.0	0.6
TOTAL	34.7	0.0	34.7
TOTAL PROJECT COSTS	39.0	0.0	39.0

TABLE VII- 34

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
COLUMBUS			
1974-1977			
EXTEND RUNWAY(9/27)			
EARTHWORK	6.6	5.2	1.3
OBSTRUCTION REMOVAL	1.0	0.7	0.2
DRAINAGE	1.0	0.7	0.2
PAVING	7.1	5.6	1.4
LANDING AIDS			
EXTEND LIGHTING SYSTEM	8.4	6.6	1.7
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	32.0	25.5	6.5
1978-1982			
OVERLAY RUNWAY(9/27)	80.0	63.5	16.4
GA AUTO PKG AREA	13.7	0.0	13.7
TOTAL	93.7	63.5	30.1
1983-1992			
GA TERM,HANGAR,APRON,ETC	24.2	9.1	15.1
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	2.6	1.6	1.0
TOTAL	28.1	10.6	17.5
TOTAL PROJECT COSTS	154.0	99.7	54.2

TABLE VII- 35

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA (IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CONRAD			
1978-1982			
EXTEND RUNWAY(5/23)			
EARTHWORK	3.0	2.3	0.6
LAND ACQUISITION	0.3	0.2	0.0
EASEMENTS	0.8	0.6	0.1
SITE PREP	0.6	0.4	0.1
DRAINAGE	2.0	1.5	0.4
PAVING	10.0	7.9	2.0
LANDING AIDS			
EXTEND LIGHTING SYSTEM	1.0	0.8	0.2
GA AUTO PKG AREA	9.4	0.0	9.4
TOTAL	27.1	14.1	13.0
1983-1992			
RECONSTRUCT RW(5/23)	300.0	238.3	61.6
GA TERM,HANGAR,APRON,ETC	13.1	2.4	10.7
GA AUTO PKG AREA	2.8	0.0	2.8
GA MAINT BLDG & APRON	2.1	1.4	0.7
TOTAL	318.0	242.1	75.8
TOTAL PROJECT COSTS	345.1	256.2	88.8

TABLE VII- 36
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CULBERTSON			
1974-1977			
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
GA AUTO PKG AREA	15.0	0.0	15.0
TOTAL	15.0	0.0	15.0
1983-1992			
EXTEND RUNWAY(7/25)	120.0	95.3	24.6
WIDEN RUNWAY(7/25)	70.0	55.6	14.3
OVERLAY RUNWAY (7/25)	90.0	71.5	18.4
RELOCATE ROAD	10.0	0.0	10.0
OBSTRUCTION REMOVAL	2.0	1.5	0.4
GA TERM,HANGAR,APRON,ETC	35.9	12.5	23.4
GA AUTO PKG AREA	2.1	0.0	2.1
TOTAL	330.0	236.5	93.4
TOTAL PROJECT COSTS	353.0	242.9	110.0

TABLE VII- 37
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
CUT BANK			
1974-1977			
RUNWAY RECONSTRUCTION	1200.0	953.5	246.4
TOTAL	1200.0	953.5	246.4
1978-1982			
GA AUTO PKG AREA	14.0	0.0	14.0
TOTAL	14.0	0.0	14.0
1983-1992			
GA TERM,HANGAR,APRON,ETC	40.5	24.5	16.0
GA AUTO PKG AREA	2.8	0.0	2.8
TOTAL	43.3	24.5	18.8
TOTAL PROJECT COSTS	1257.3	978.0	279.2

TABLE VII- 38
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
DEER LODGE			
1978-1982			
EXTEND RUNWAY(12/30)			
EARTHWORK	45.0	35.7	9.2
LAND ACQUISITION	0.4	0.3	0.0
EASEMENTS	0.5	0.3	0.1
SITE PREP	3.9	3.1	0.8
OBSTRUCTION REMOVAL	0.5	0.3	0.1
DRAINAGE	1.8	1.4	0.3
PAVING	31.7	25.1	6.5
LANDING AIDS			
EXTEND LIGHTING SYSTEM	3.3	2.6	0.6
GA AUTO PKG AREA	2.5	0.0	2.5
TOTAL	89.7	69.3	20.4
1983-1992			
NAVAIDS			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	6.1	4.9	1.2
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.0	0.6	0.4
TOTAL	15.7	11.8	3.9
TOTAL PROJECT COSTS	105.5	81.1	24.3

TABLE VII- 39
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
DELL			
1974-1977			
EXTEND RUNWAY(14/32)			
PAVING	13.4	0.0	13.4
NDB	8.0	0.0	8.0
TOTAL	21.4	0.0	21.4
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	6.8	0.0	6.8
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.6	0.0	0.6
TOTAL	8.7	0.0	8.7
TOTAL PROJECT COSTS	33.0	0.0	33.0

TABLE VII- 40
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
DENTON			
1974-1977			
EXTEND RUNWAY(16/34)			
EARTHWORK	3.7	0.0	3.7
LAND ACQUISITION	4.5	0.0	4.5
EASEMENTS	0.8	0.0	0.8
SITE PREP	3.7	0.0	3.7
OBSTRUCTION REMOVAL	0.5	0.0	0.5
TOTAL	13.2	0.0	13.2
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	0.5	0.0	0.5
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	1.5	0.0	1.5
TOTAL PROJECT COSTS	15.4	0.0	15.4

TABLE VII- 41
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
DILLON			
1974-1977			
EXTEND RUNWAY(16/34)			
EARTHWORK	4.8	3.8	0.9
LAND ACQUISITION	2.4	1.9	0.4
EASEMENT	0.5	0.4	0.1
SITE PREP	0.6	0.4	0.1
OBSTRUCTION REMOVAL	0.5	0.3	0.1
PAVING	40.0	31.7	8.2
LANDING AIDS			
EXTEND LIGHTING SYSTEM	4.2	3.3	0.8
TOTAL	53.0	42.1	10.8
1978-1982			
PAVE RUNWAY(3/21)	168.0	133.4	34.5
RUNWAY OVERLAY	96.0	76.2	19.7
GA AUTO PKG AREA	13.4	0.0	13.4
TOTAL	277.4	209.7	67.6
1983-1992			
EXTEND RUNWAY(16/34)			
EARTHWORK	13.7	10.8	2.8
LAND ACQUISITION	8.0	6.3	1.6
EASEMENTS	0.8	0.6	0.1
SITE PREP	13.4	10.6	2.7
OBSTRUCTION REMOVAL	0.5	0.3	0.1
PAVING	130.0	103.2	26.7
LANDING AIDS			
EXTEND LIGHTING SYSTEM	15.6	12.3	3.2
GA TERM,HANGAR,APRON,ETC	39.7	23.2	16.5
GA AUTO PKG AREA	3.6	0.0	3.6
GA MAINT BLDG & APRON	3.3	2.1	1.2
TOTAL	228.6	169.9	58.6
TOTAL PROJECT COSTS	559.0	421.8	137.2

TABLE VII- 42
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

DRUMMOND	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND RUNWAY(9/27)			
EARTHWORK	32.6	25.9	6.6
LAND ACQUISITION	0.6	0.4	0.1
EASEMENTS	0.8	0.6	0.1
SITE PREP	24.0	19.0	4.9
RELOCATE UNPAVED ROAD	10.0	0.0	10.0
TOTAL	68.0	46.0	21.9
1978-1982			
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	4.4	0.0	4.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	8.3	5.3	3.0
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.0	0.6	0.4
TOTAL	10.7	5.8	4.8
TOTAL PROJECT COSTS	83.0	51.9	31.1

TABLE VII- 43
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
DUTTON			
1974-1977			
EXTEND RUNWAY(16/34)			
EARTHWORK	38.0	0.0	38.0
LAND ACQUISITION	1.5	0.0	1.5
EASEMENTS	0.8	0.0	0.8
SITE PREPARATION	3.6	0.0	3.6
DRAINAGE	1.2	0.0	1.2
ROAD RELOCATION	17.5	0.0	17.5
LANDING AIDS			
EXTEND LIGHTING SYSTEM	7.0	0.0	7.0
LAND ACQUISITION	12.0	0.0	12.0
CROSSWIND RUNWAY	12.0	0.0	12.0
TOTAL	93.7	0.0	93.7
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	2.2	0.0	2.2
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	3.1	0.0	3.1
TOTAL PROJECT COSTS	97.6	0.0	97.6

TABLE VII- 44
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

EAST POPLAR	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND LANDING STRIP			
EARTHWORK	2.1	0.0	2.1
SITE PREP	1.9	0.0	1.9
DRAINAGE	0.8	0.0	0.8
TOTAL	4.8	0.0	4.8
1978-1982			
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	1.4	0.0	1.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	6.5	0.0	6.5
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.5	0.0	0.5
TOTAL	8.4	0.0	8.4
TOTAL PROJECT COSTS	14.6	0.0	14.6

TABLE VII- 45
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
EKALAKA			
1974-1977			
EXTEND RUNWAY(12/30)			
EARTHWORK	6.0	4.7	1.2
LAND ACQUISITION	1.3	1.0	0.2
EASEMENTS	0.8	0.6	0.1
SITE PREP.	1.2	0.9	0.2
OBSTRUCTION REMOVAL	0.2	0.1	0.0
DRAINAGE	2.4	1.9	0.4
TOTAL	11.9	9.4	2.4
1978-1982			
GA AUTO PKG AREA	2.5	0.0	2.5
TOTAL	2.5	0.0	2.5
1983-1992			
GA TERM,HANGAR,APRON,ETC	7.6	5.0	2.6
GA AUTO PKG AREA	1.2	0.0	1.2
GA MAINT BLDG & APRON	0.5	0.3	0.2
TOTAL	9.3	5.3	4.0
TOTAL PROJECT COSTS	23.7	14.7	8.9

TABLE VII- 46
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

ENNIS-NEW AIRPORT	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
MISC. AIRPORT DEVELOPMEN			
LAND ACQUISITION	10.0	7.9	2.0
SITE PREPARATION	15.0	11.9	3.0
DRAINAGE	12.0	9.5	2.4
ACCESS ROAD	3.0	2.3	0.6
AIRCRAFT PARKING	1.6	1.2	0.3
AUTO PARKING	1.6	0.0	1.6
PAVE RW,TW,APRONS	300.0	238.3	61.6
LANDING AIDS			
MIRL	34.0	27.0	6.9
BEACON	5.0	3.9	1.0
UTILITIES	5.0	3.9	1.0
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	13.4	0.0	13.4
TOTAL	408.5	312.7	95.8
1983-1992			
GA TERM,HANGAR,APRON,ETC	26.1	6.5	19.6
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	2.4	1.5	0.9
TOTAL	30.5	8.0	22.5
TOTAL PROJECT COSTS	439.1	320.7	118.4

TABLE VII- 47

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
EUREKA			
1974-1977			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
GA AUTO PKG AREA	10.4	0.0	10.4
TOTAL	10.4	0.0	10.4
1983-1992			
OVERLAY RUNWAY(14/32)	48.0	38.1	9.8
GA TERM,HANGAR,APRON,ETC	28.1	7.6	20.5
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.6	1.0	0.6
TOTAL	78.3	46.7	31.6
TOTAL PROJECT COSTS	96.7	53.0	43.7

TABLE VII- 48
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
FAIRFIELD			
1978-1982			
EXTEND RUNWAY(2/20)			
EARTHWORK	16.5	0.0	16.5
LAND ACQUISITION	0.8	0.0	0.8
EASEMENTS	0.2	0.0	0.2
SITE PREP	5.4	0.0	5.4
OBSTRUCTION REMOVAL	0.5	0.0	0.5
DRAINAGE	4.0	0.0	4.0
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	28.9	0.0	28.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	5.3	0.0	5.3
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.5	0.0	0.5
TOTAL	7.1	0.0	7.1
TOTAL PROJECT COSTS	36.1	0.0	36.1

TABLE VII- 49
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
FAIRVIEW			
1978-1982			
EXTEND RUNWAY(8/26)			
EARTHWORK	1.5	0.0	1.5
LAND ACQUISITION	1.6	0.0	1.6
EASEMENTS	0.8	0.0	0.8
SITE PREP.	1.2	0.0	1.2
OBSTRUCTION REMOVAL	2.5	0.0	2.5
DRAINAGE	1.2	0.0	1.2
GA AUTO PKG AREA	2.2	0.0	2.2
TOTAL	11.0	0.0	11.0
1983-1992			
LANDING AIDS			
MIRL	22.4	17.7	4.6
BEACON	5.0	3.9	1.0
UTILITIES			
POWER	3.0	2.3	0.6
NAVAIDS			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	6.4	1.6	4.8
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.7	0.1	0.6
TOTAL	46.8	32.2	14.6
TOTAL PROJECT COSTS	57.9	32.2	25.7

TABLE VII- 50
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
FORSYTH			
1974-1977			
EXTEND RUNWAY(7/25)			
EARTHWORK	15.0	11.9	3.0
LAND ACQUISITION	3.6	2.8	0.7
EASEMENTS	1.2	0.9	0.2
SITE PREPARATION	10.1	8.0	2.0
PAVING	68.4	54.3	14.0
TOTAL	98.3	78.1	20.1
1978-1982			
LANDING AIDS			
MIRL	35.0	27.8	7.1
GA AUTO PKG AREA	10.1	0.0	10.1
TOTAL	45.1	27.8	17.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	21.7	8.2	13.5
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.9	1.2	0.7
TOTAL	24.2	9.3	14.8
TOTAL PROJECT COSTS	167.6	115.3	52.3

TABLE VII- 52
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

FORTINE	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.0	0.0	4.0
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	5.0	0.0	5.0
TOTAL PROJECT COSTS	5.6	0.0	5.6

TABLE VII- 53
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
GERALDINE			
1974-1977			
EXTEND RUNWAY(7/26)			
EARTHWORK	12.6	10.0	2.5
LAND ACQUISITION	4.2	3.3	0.8
EASEMENTS	0.8	0.6	0.1
SITE PREP	8.9	7.0	1.8
OBSTRUCTION REMOVAL	0.2	0.1	0.0
PAVING	46.6	37.0	9.5
LANDING AIDS			
EXTEND LIGHTING SYSTEM	4.9	3.8	1.0
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	86.3	68.5	17.7
1978-1982			
GA AUTO PKG AREA	11.0	0.0	11.0
TOTAL	11.0	0.0	11.0
1983-1992			
GA TERM,HANGAR,APRON,ETC	19.5	5.2	14.3
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.6	1.0	0.6
TOTAL	22.5	6.2	16.2
TOTAL PROJECT COSTS	119.8	74.7	45.0

TABLE VII- 54

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HAMILTON			
1974-1977			
OVERLAY RUNWAY(16/34)	87.5	69.5	17.9
OBSTRUCTION REMOVAL	0.5	0.3	0.1
TOTAL	88.0	69.9	18.0
1978-1982			
GA AUTO PKG AREA	13.4	0.0	13.4
TOTAL	13.4	0.0	13.4
1983-1992			
EXTEND RUNWAY			
EARTHWORK	231.7	184.1	47.6
LAND ACQUISITION	12.5	9.9	2.5
EASEMENTS	0.3	0.2	0.0
SITE PREP	21.6	17.1	4.4
OBSTRUCTION REMOVAL	0.5	0.3	0.1
DRAINAGE	7.8	6.1	1.6
PAVING	265.0	210.5	54.4
LANDING AIDS			
EXTEND LIGHTING SYSTEM	12.8	10.1	2.6
GA TERM,HANGAR,APRON,ETC	54.2	29.2	25.0
GA AUTO PKG AREA	5.8	0.0	5.8
GA MAINT BLDG & APRON	1.0	0.9	0.1
TOTAL	613.2	468.9	144.3
TOTAL PROJECT COSTS	714.6	538.8	175.8

TABLE VII- 55

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HARDIN			
1978-1982			
EXTEND RUNWAY(4/22)			
EARTHWORK	15.0	11.9	3.0
LAND ACQUISITION	0.2	0.1	0.0
EASEMENTS	0.1	0.0	0.0
SITE PREP	3.0	2.3	0.6
OBSTRUCTION REMOVAL	80.0	63.5	16.4
PAVING	2.8	2.2	0.5
NAVAIDS			
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	14.6	0.0	14.6
TOTAL	123.6	86.6	37.0
1983-1992			
RUNWAY OVERLAY	59.2	47.0	12.1
GA TERM,HANGAR,APRON,ETC	23.7	2.9	20.8
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.1	0.9	0.2
TOTAL	85.3	50.8	34.5
TOTAL PROJECT COSTS	209.0	137.5	71.5

TABLE VII- 56

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA (IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HARLEM			
1978-1982			
PROPERTY FOR CLEARANCE	1.0	0.7	0.2
WIDEN LANDING STRIP	30.0	23.8	6.1
NAVAIDS			
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	9.5	0.0	9.5
TOTAL	48.5	30.9	17.5
1983-1992			
OVERLAY RUNWAY(10/28)	48.6	38.6	9.9
GA TERM,HANGAR,APRON,ETC	25.7	7.8	17.9
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.9	1.2	0.7
TOTAL	78.2	47.6	30.6
TOTAL PROJECT COSTS	126.7	78.6	48.1

TABLE VII- 57
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HARLOWTON			
1974-1977			
EXTEND RUNWAY(8/26)			
EARTHWORK	5.5	4.4	1.1
LAND ACQUISITION	3.1	2.4	0.6
EASEMENTS	0.8	0.6	0.1
SITE PREP.	2.4	1.9	0.4
OBSTRUCTION REMOVAL	0.7	0.5	0.1
LANDING AIDS			
MIRL	28.7	22.8	5.9
NAVAIDS			
NDB	8.0	6.3	1.6
TOTAL	49.3	39.1	10.1
1978-1982			
GA AUTO PKG AREA	6.1	0.0	6.1
TOTAL	6.1	0.0	6.1
1983-1992			
GA TERM,HANGAR,APRON,ETC	5.0	4.1	0.9
GA MAINT BLDG & APRON	1.1	0.7	0.4
TOTAL	6.1	4.8	1.3
TOTAL PROJECT COSTS	61.5	43.9	17.5

TABLE VII- 58

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HOT SPRINGS			
1974-1977			
EXTEND RUNWAY(6/24)			
EARTHWORK	4.8	0.0	4.8
LAND ACQUISITION	2.4	0.0	2.4
EASEMENTS	0.8	0.0	0.8
SITE PREP	2.4	0.0	2.4
OBSTRUCTION REMOVAL	0.1	0.0	0.1
DRAINAGE	2.4	0.0	2.4
TOTAL	12.9	0.0	12.9
1978-1982			
GA AUTO PKG AREA	7.4	0.0	7.4
TOTAL	7.4	0.0	7.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	7.8	1.4	6.4
GA MAINT BLDG & APRON	1.1	0.2	0.9
TOTAL	8.8	1.5	7.3
TOTAL PROJECT COSTS	29.2	1.5	27.6

TABLE VII- 59
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
HYSHAM			
1974-1977			
EXTEND RUNWAY(7/25)			
EARTHWORK	4.5	0.0	4.5
SITE PREP	2.4	0.0	2.4
TOTAL	6.9	0.0	6.9
1978-1982			
GA AUTO PKG AREA	1.1	0.0	1.1
TOTAL	1.1	0.0	1.1
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.6	0.0	3.6
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.5	0.0	0.5
TOTAL	4.8	0.0	4.8
TOTAL PROJECT COSTS	12.7	0.0	12.7

TABLE VII- 60
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
JORDAN			
1978-1982			
EXTEND RUNWAY(10/28)			
EARTHWORK	3.0	2.3	0.6
LAND ACQUISITION	4.0	3.2	0.8
EASEMENTS	1.0	0.7	0.2
SITE PREPARATION	2.4	1.9	0.4
PAVING	20.0	15.8	4.1
MIRL	2.1	1.6	0.4
TOTAL	32.5	25.8	6.6
1983-1992			
GA TERM,HANGAR,APRON,ETC	25.9	6.9	19.0
GA AUTO PKG AREA	3.6	0.0	3.6
GA MAINT BLDG & APRON	1.9	1.2	0.7
TOTAL	31.3	8.1	23.2
TOTAL PROJECT COSTS	63.9	33.9	29.9

TABLE VII- 61
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

KALISPELL CITY	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
GA AUTO PKG AREA	31.4	0.0	31.4
TOTAL	31.4	0.0	31.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	83.4	0.0	83.4
GA AUTO PKG AREA	8.8	0.0	8.8
GA MAINT BLDG & APRON	5.2	0.0	5.2
TOTAL	97.3	0.0	97.3
TOTAL PROJECT COSTS	128.7	0.0	128.7

TABLE VII- 62
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LAUREL			
1978-1982			
GA AUTO PKG AREA	11.8	0.0	11.8
TOTAL	11.8	0.0	11.8
1983-1992			
OVERLAY RUNWAY (3-21)	85.5	67.9	17.5
GA TERM,HANGAR,APRON,ETC	33.0	8.7	24.3
GA AUTO PKG AREA	6.6	0.0	6.6
GA MAINT BLDG & APRON	3.2	2.0	1.2
TOTAL	128.3	78.6	49.6
TOTAL PROJECT COSTS	140.1	78.6	61.4

TABLE VII- 63
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LAVINA			
1974-1977			
EXTEND LANDING STRIP			
EARTHWORK	3.6	0.0	3.6
SITE PREPARATION	2.4	0.0	2.4
DRAINAGE	1.8	0.0	1.8
LAND ACQUISITION	2.4	0.0	2.4
EASEMENTS	0.8	0.0	0.8
OBSTRUCTION REMOVAL	0.1	0.0	0.1
TOTAL	11.0	0.0	11.0
1978-1982			
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	1.4	0.0	1.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.4	0.0	3.4
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	3.7	0.0	3.7
TOTAL PROJECT COSTS	16.2	0.0	16.2

TABLE VII- 64
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LIBBY			
1974-1977			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
OVERLAY RUNWAY(14/32)	94.5	75.0	19.4
GA AUTO PKG AREA	19.6	0.0	19.6
TOTAL	114.1	75.0	39.0
1983-1992			
EXTEND RUNWAY(14/32)			
EARTHWORK	1.9	1.5	0.4
EASEMENTS	0.2	0.1	0.0
DRAINAGE	2.4	1.9	0.4
LIGHTING	3.1	2.5	0.6
PAVING	23.1	18.3	4.7
GA TERM,HANGAR,APRON,ETC	66.0	19.9	46.1
GA AUTO PKG AREA	4.4	0.0	4.4
GA MAINT BLDG & APRON	4.2	2.6	1.6
TOTAL	105.4	47.0	58.4
TOTAL PROJECT COSTS	227.5	128.4	99.0

TABLE VII- 65
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LINCOLN			
1974-1977			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
EXTEND RUNWAY (4-22)			
EARTHWORK	2.4	1.9	0.4
SITE PREPARATION	1.2	0.9	0.2
LAND ACQUISITION	1.5	1.1	0.3
EASEMENTS	0.5	0.3	0.1
DRAINAG	2.4	1.9	0.4
PAVING	2.4	1.9	0.5
OBSTRUCTION REMOVAL	0.2	0.1	0.0
MIRL	36.0	28.6	7.3
GA AUTO PKG AREA	5.0	0.0	5.0
TOTAL	51.6	37.0	14.5
1983-1992			
GA TERM,HANGAR,APRON,ETC	9.6	6.2	3.4
GA AUTO PKC AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.2	0.8	0.4
TOTAL	12.8	7.0	5.8
TOTAL PROJECT COSTS	72.5	50.4	22.1

TABLE VII- 66

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
LIVINGSTON			
1974-1977			
OVERLAY RUNWAY(4/22)	94.5	75.0	19.4
TOTAL	94.5	75.0	19.4
1978-1982			
GA AUTO PKG AREA	11.2	0.0	11.2
TOTAL	11.2	0.0	11.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	21.6	13.5	8.1
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	23.0	13.5	9.5
TOTAL PROJECT COSTS	128.7	88.5	40.1

TABLE VII- 67
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
MALTA			
1978-1982			
EXTEND RUNWAY(7-25)			
EARTHWORK	11.1	8.8	2.2
EASEMENTS	0.5	0.3	0.1
SITE PREPARATION	0.2	0.1	0.0
DRAINAGE	3.0	2.3	0.6
PAVING	50.0	39.7	10.2
OVERLAY RUNWAY(7-25)	74.2	58.9	15.2
GA AUTO PKG AREA	8.9	0.0	8.9
TOTAL	147.9	110.5	37.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	11.1	0.0	11.1
GA AUTO PKG AREA	4.4	0.0	4.4
GA MAINT BLDG & APRON	1.0	0.9	0.1
TOTAL	16.5	0.9	15.5
TOTAL PROJECT COSTS	164.4	111.4	53.0

TABLE VII- 68
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

MEDICINE LAKE	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND LANDING STRIP			
EARTHWORK	37.5	0.0	37.5
LAND ACQUISITION	1.6	0.0	1.6
EASEMENTS	0.7	0.0	0.7
SITE PREPARATION	2.6	0.0	2.6
LIRL	2.5	0.0	2.5
ROAD RELOCATION	5.0	0.0	5.0
TOTAL	50.0	0.0	50.0
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.4	0.0	3.4
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	4.5	0.0	4.5
TOTAL PROJECT COSTS	55.2	0.0	55.2

TABLE VII- 69

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA (IN THOUSANDS OF 1972 DOLLARS)

MORGAN	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND RUNWAY(7-25)			
EARTHWORK	3.0	0.0	3.0
LAND ACQUISITION	1.0	0.0	1.0
EASEMENTS	0.4	0.0	0.4
SITE PREPARATION	1.4	0.0	1.4
OBSTRUCTION REMOVAL	0.3	0.0	0.3
TOTAL	6.2	0.0	6.2
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.0	0.0	4.0
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	5.1	0.0	5.1
TOTAL PROJECT COSTS	12.0	0.0	12.0

TABLE VII- 70

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA (IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
OPHEIM			
1974-1977			
EXTEND LANDING STRIP			
EARTHWORK	4.8	0.0	4.8
LAND ACQUISITION	2.6	0.0	2.6
EASEMENTS	0.4	0.0	0.4
SITE PREPARATION	2.6	0.0	2.6
OBSTRUCTION REMOVAL	0.2	0.0	0.2
TOTAL	10.7	0.0	10.7
1978-1982			
GA AUTO PKG AREA	0.4	0.0	0.4
TOTAL	0.4	0.0	0.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.0	0.0	3.0
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.6	0.0	0.6
TOTAL	4.3	0.0	4.3
TOTAL PROJECT COSTS	15.4	0.0	15.4

TABLE VII- 71
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
PHILIPSBURG			
1974-1977			
EXTEND RUNWAY(16-34)			
EARTHWORK	5.4	4.2	1.1
EASEMENTS	0.2	0.1	0.0
SITE PREPARATION	2.0	1.6	0.4
DRAINAGE	2.1	1.6	0.4
PAVING	5.3	4.2	1.0
LIGHTS (LIRL)	7.2	5.7	1.4
NDB	8.0	6.3	1.6
ROAD RELOCATION	5.0	0.0	5.0
TOTAL	35.3	24.1	11.2
1978-1982			
OVERLAY RUNWAY(16/34)	64.8	51.4	13.3
GA AUTO PKG AREA	10.9	0.0	10.9
TOTAL	75.6	51.4	24.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	36.9	13.9	23.0
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	2.1	1.3	0.8
TOTAL	39.6	15.2	24.5
TOTAL PROJECT COSTS	150.7	90.7	59.9

TABLE VII- 72
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
PLAINS			
1974-1977			
NDB	8.0	6.3	1.6
TOTAL	8.0	6.3	1.6
1978-1982			
EXTEND RUNWAY (12-30)			
EARTHWORK	5.4	4.2	1.1
LAND ACQUISITION	0.8	0.6	0.1
EASEMENTS	0.3	0.2	0.0
SITE PREP.	0.1	0.1	0.0
DRAINAGE	6.0	4.7	1.2
PAVE RUNWAY (12-30)	140.0	111.2	28.7
LANDING AIDS			
MIRL	0.3	0.2	0.0
GA AUTO PKG AREA	4.6	0.0	4.6
TOTAL	157.5	121.5	36.0
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.0	3.2	0.8
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.1	0.7	0.4
TOTAL	6.5	3.9	2.5
TOTAL PROJECT COSTS	172.0	131.8	40.2

TABLE VII- 73
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
PLENTYWOOD			
1978-1982			
EXTEND RUNWAY			
EARTHWORK	1.8	1.4	0.3
SITE PREPARATION	0.6	0.4	0.1
PAVING	6.6	5.2	1.3
LIGHTING MIRL	7.0	5.5	1.4
GA AUTO PKG AREA	12.7	0.0	12.7
TOTAL	28.7	12.7	16.0
1983-1992			
OVERLAY RUNWAY (12-30)	74.2	58.9	15.2
EXTEND RUNWAY			
EARTHWORK	6.6	5.2	1.3
SITE PREPARATION	7.5	6.0	1.5
PAVING	73.4	58.3	15.0
LIGHTING (MIRL)	7.7	6.1	1.5
LAND ACQUISITION			
GA TERM,HANGAR,APRON,ETC	20.4	8.9	11.5
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	3.0	1.9	1.1
TOTAL	194.3	145.4	48.8
TOTAL PROJECT COSTS	223.0	158.2	64.8

TABLE VII- 74

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
POLSON-NEW			
1974-1977			
LAND ACQUISITION	30.0	23.8	6.1
SITE PREPARATION	50.0	39.7	10.2
ACCESS ROAD, UNPAVED	10.0	0.0	10.0
NDB	8.0	6.3	1.6
GRADE AND DRAIN	45.0	35.7	9.2
PAVE/LIGHT RW,TW,APRN	450.0	357.5	92.4
AUTO PARKING	10.0	7.9	2.0
UTILITIES	5.0	0.0	5.0
TOTAL	608.0	471.1	136.8
1978-1982			
GA AUTO PKG AREA	24.8	0.0	24.8
TOTAL	24.8	0.0	24.8
1983-1992			
GA TERM,HANGAR,APRON,ETC	61.8	16.5	45.3
GA AUTO PKG AREA	5.1	0.0	5.1
GA MAINT BLDG & APRON	5.1	3.2	1.9
TOTAL	72.0	19.7	52.2
TOTAL PROJECT COSTS	704.7	490.8	213.9

TABLE VII- 75
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
POPLAR			
1978-1982			
EXTEND RUNWAY (6-27)			
EARTHWORK	2.4	1.9	0.4
EASEMENTS	0.1	0.1	0.0
LIGHTING (MIRL)	0.5	0.4	0.1
PAVING	13.0	10.3	2.6
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	3.1	0.0	3.1
TOTAL	27.1	19.1	8.0
1983-1992			
GA TERM,HANGAR,APRON,ETC	7.2	4.5	2.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.3	0.8	0.5
TOTAL	9.8	5.3	4.6
TOTAL PROJECT COSTS	37.0	24.4	12.6

TABLE VII- 76
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

RED LODGE	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
EXTEND RUNWAY(16-34)			
EARTH WORK	8.4	6.6	1.7
LAND ACQUISITION	2.0	1.5	0.4
EASEMENTS	0.2	0.2	0.0
DRAINAGE	1.8	1.4	0.3
PAVING	26.7	21.2	5.4
MIRL	40.0	31.7	8.2
GA AUTO PKG AREA	10.9	0.0	10.9
TOTAL	90.0	62.9	27.1
1983-1992			
OVERLAY RUNWAY(16/34)	150.0	119.1	30.8
GA TERM,HANGAR,APRON,ETC	21.4	5.4	16.0
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	0.9	0.8	0.1
TOTAL	174.3	125.3	49.0
TOTAL PROJECT COSTS	264.4	188.3	76.1

TABLE VII- 77
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
RONAN			
1974-1977			
EXTEND RUNWAY (3-21)			
EARTH WORK	4.5	0.0	4.5
EASEMENTS	0.4	0.0	0.4
SITE PREPARATION	0.2	0.0	0.2
OBSTRUCTIONS	1.3	0.0	1.3
DRAINAGE	2.2	0.0	2.2
TOTAL	8.6	0.0	8.6
1978-1982			
GA AUTO PKG AREA	3.7	0.0	3.7
TOTAL	3.7	0.0	3.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	7.7	0.0	7.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	9.3	0.0	9.3
TOTAL PROJECT COSTS	21.7	0.0	21.7

TABLE VII- 78
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

ROUNDUP	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
EXTEND RUNWAY(4-22)			
EARTH WORK	7.0	5.6	1.4
LAND ACQUISITION	5.0	3.9	1.0
EASEMENTS	0.8	0.6	0.1
SITE PREPARATION	3.4	2.7	0.7
OBSTRUCTIONS	0.1	0.0	0.0
DRAINAGE	2.1	1.6	0.4
PAVING	13.3	10.5	2.7
LIGHTING	2.1	1.6	0.4
RECONSTRUCT RUNWAY(4/22)	300.0	238.3	61.6
GA AUTO PKG AREA	10.4	0.0	10.4
TOTAL	344.3	265.3	78.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	24.0	8.8	15.2
GA AUTO PKG AREA	2.8	0.0	2.8
GA MAINT BLDG & APRON	2.1	1.3	0.8
TOTAL	28.9	10.1	18.7
TOTAL PROJECT COSTS	373.2	275.4	97.7

TABLE VII- 79
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

RYLGATE	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	1.4	0.0	1.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.1	0.0	4.1
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.5	0.0	0.5
TOTAL	5.3	0.0	5.3
TOTAL PROJECT COSTS	6.6	0.0	6.6

TABLE VII- 80
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
ST. IGNATIUS-NEW			
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
LAND ACQUISITION	15.6	12.3	3.2
SITE PREPARATION	10.5	8.3	2.1
LANDING AIDS			
MIRL	20.4	16.2	4.1
BEACON	5.0	3.9	1.0
ACCESS ROAD	50.0	39.7	10.2
REPLACE HANGARS	37.0	29.4	7.5
GA TERM,HANGAR,APRON,ETC	10.3	0.7	9.6
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.8	0.0	0.8
TOTAL	150.9	110.7	40.2
TOTAL PROJECT COSTS	153.8	110.7	43.1

TABLE VII- 81
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SCOBEY			
1974-1977			
EXTEND RUNWAY(12-30)			
EARTHWORK	4.5	3.5	0.9
LAND ACQUISITION	2.8	2.2	0.5
EASEMENTS	0.8	0.6	0.1
SITE PREPARATION	4.5	3.5	0.9
OBSTRUCTION REMOVAL	0.7	0.5	0.1
PAVING	33.3	26.4	6.8
LIGHTING (MIRL)	33.5	26.6	6.8
NDB	8.0	6.3	1.6
TOTAL	88.1	70.0	18.1
1978-1982			
GA AUTO PKG AREA	3.9	0.0	3.9
TOTAL	3.9	0.0	3.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	22.9	7.5	15.4
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.8	1.1	0.7
TOTAL	26.0	8.6	17.5
TOTAL PROJECT COSTS	118.1	78.6	39.5

TABLE VII- 82

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SEELEY LAKE			
1978-1982			
EXTEND LANDING STRIP			
EARTH WORK	3.0	0.0	3.0
SITE PREPARATION	4.2	0.0	4.2
EASEMENTS	0.4	0.0	0.4
GA AUTO PKG AREA	1.4	0.0	1.4
TOTAL	9.0	0.0	9.0
1983-1992			
GA TERM,HANGAR,APRON,ETC	5.6	0.0	5.6
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.5	0.0	0.5
TOTAL	7.5	0.0	7.5
TOTAL PROJECT COSTS	16.5	0.0	16.5

TABLE VII- 83

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SHELBY			
1978-1982			
OVERLAY RUNWAY(5-23),TW	120.0	95.3	24.6
EXTEND RW(5-23),TW			
EARTHWORK	55.0	43.7	11.2
LAND ACQUISITION	2.0	1.5	0.4
EASEMENTS	1.0	0.7	0.2
SITE PREPARATION	5.4	4.2	1.1
OBSTRUCTION REMOVAL	1.0	0.7	0.2
DRAINAGE	2.0	1.5	0.4
LIGHTING (MIRL)	9.8	7.7	2.0
PAVE RUNWAY(11-29)	165.0	131.1	33.8
GA AUTO PKG AREA	16.1	0.0	16.1
TOTAL	377.2	287.0	90.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	35.6	10.6	25.0
GA AUTO PKG AREA	3.6	0.0	3.6
GA MAINT BLDG & APRON	0.8	0.7	0.1
TOTAL	40.0	11.2	28.7
TOTAL PROJECT COSTS	417.2	298.3	118.9

TABLE VII- 84
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
STANFORD			
1974-1977			
OVERLAY RUNWAY(11-29)	105.0	0.0	105.0
TOTAL	105.0	0.0	105.0
1978-1982			
GA AUTO PKG AREA	2.8	0.0	2.8
TOTAL	2.8	0.0	2.8
1983-1992			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	8.2	0.7	7.5
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.9	0.0	0.9
TOTAL	18.4	7.0	11.4
TOTAL PROJECT COSTS	126.2	7.0	119.2

TABLE VII- 85
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
STEVENSVILLE			
1974-1977			
LIGHTING & BEACON	30.2	23.9	6.2
TOTAL	30.2	23.9	6.2
1978-1982			
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	4.4	0.0	4.4
1983-1992			
NDB	8.0	6.3	1.6
PAVING	224.0	177.9	46.0
GA TERM,HANGAR,APRON,ETC	17.1	11.6	5.5
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.0	0.7	0.3
TOTAL	252.1	196.6	55.5
TOTAL PROJECT COSTS	286.7	220.6	66.1

TABLE VII- 86
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SUPERIOR			
1978-1982			
EXTEND RUNWAY(12-30)			
EARTH WORK	0.5	0.4	0.1
SITE PREPARATION	0.3	0.2	0.0
EASEMENTS	0.0	0.0	0.0
PAVING	6.6	5.2	1.3
LIGHTING	0.7	0.5	0.1
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	12.7	6.6	6.1
1983-1992			
GA TERM,HANGAR,APRON,ETC	10.8	7.0	3.8
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.1	0.7	0.4
TOTAL	12.5	7.7	4.8
TOTAL PROJECT COSTS	25.3	14.3	11.0

TABLE VII- 87

RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA

(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
SWEETGRASS			
1978-1982			
EXTEND RUNWAY(7-25)			
EARTH WORK	6.6	0.0	6.6
LAND ACQUISITION	2.2	0.0	2.2
EASEMENTS	0.5	0.0	0.5
SITE PREPARATION	3.7	0.0	3.7
GA AUTO PKG AREA	0.8	0.0	0.8
TOTAL	13.9	0.0	13.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	5.6	0.0	5.6
GA AUTO PKG AREA	0.8	0.0	0.8
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	6.6	0.0	6.6
TOTAL PROJECT COSTS	20.6	0.0	20.6

TABLE VII- 88
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
TERRY			
1974-1977			
EXTEND RUNWAY(10-28)			
EARTHWORK	6.1	4.8	1.2
LAND ACQUISITION	2.2	1.7	0.4
EASEMENTS	0.5	0.4	0.1
SITE PREPARATION	0.6	0.4	0.1
OBSTRUCTION REMOVAL	0.6	0.4	0.1
MIRL & BEACON	34.7	27.5	7.1
TOTAL	44.8	35.6	9.2
1978-1982			
PAVE RUNWAY(10/28)	150.0	119.1	30.8
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	152.9	119.1	33.7
1983-1992			
NDB	8.0	6.3	1.6
GA TERM,HANGAR,APRON,ETC	5.5	3.4	2.1
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.2	0.8	0.4
TOTAL	16.1	10.5	5.5
TOTAL PROJECT COSTS	213.8	165.4	48.4

TABLE VII- 89
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
THOMPSON FALLS			
1974-1977			
EXTEND RUNWAY(7-25)			
EARTHWORK	7.8	0.0	7.8
LAND ACQUISITION	2.7	0.0	2.7
EASEMENTS	0.5	0.0	0.5
SITE PREPARATION	0.3	0.0	0.3
DRAINAGE	1.5	0.0	1.5
PAVE RUNWAY(7/25)	150.0	0.0	150.0
MIRL	1.0	0.0	1.0
TOTAL	163.9	0.0	163.9
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	6.0	0.0	6.0
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	0.8	0.0	0.8
TOTAL	8.2	0.0	8.2
TOTAL PROJECT COSTS	175.0	0.0	175.0

TABLE VII- 90
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

THREE FORKS	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
EXTEND RUNWAY(1-19)			
EARTH WORK	6.6	5.2	1.3
LAND ACQUISITION	2.7	2.1	0.5
EASEMENT	0.4	0.3	0.0
SITE PREPARATION	3.6	2.8	0.7
DRAINAGE	6.6	5.2	1.3
EXTEND LIRL	6.3	5.0	1.2
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	6.7	0.0	6.7
TOTAL	40.9	27.1	13.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	7.8	5.1	2.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.2	0.8	0.4
TOTAL	10.3	5.8	4.5
TOTAL PROJECT COSTS	51.3	33.0	18.2

TABLE VII- 91
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

TIBER DAM	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	4.0	0.0	4.0
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.4	0.0	0.4
TOTAL	5.1	0.0	5.1
TOTAL PROJECT COSTS	5.8	0.0	5.8

TABLE VII- 92
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

TOWNSEND CANYON F	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND RUNWAY(16/34)			
EARTHWORK	3.6	0.0	3.6
LAND AQUISITION	1.8	0.0	1.8
EASEMENTS	0.8	0.0	0.8
SITE PREPARATION	1.6	0.0	1.6
TOTAL	7.9	0.0	7.9
1978-1982			
GA AUTO PKG AREA	0.8	0.0	0.8
TOTAL	0.8	0.0	0.8
1983-1992			
GA AUTO PKG AREA	1.6	0.0	1.6
GA MAINT BLDG & APRON	0.7	0.0	0.7
TOTAL	2.3	0.0	2.3
TOTAL PROJECT COSTS	11.0	0.0	11.0

TABLE VII- 93
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
TOWNSEND, TOWNSEND			
1978-1982			
PAVE CONN. TAXIWAY	7.5	5.9	1.5
PAVE APRONS	10.0	7.9	2.0
CONSTRUCT ACCESS ROAD	12.0	0.0	12.0
OBSTRUCTION REMOVAL	3.0	2.3	0.6
NDB	8.0	6.3	1.6
GA AUTO PKG AREA	4.1	0.0	4.1
TOTAL	44.6	22.6	21.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	8.1	5.2	2.9
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.3	0.9	0.4
TOTAL	11.4	6.1	5.3
TOTAL PROJECT COSTS	56.0	28.7	27.3

TABLE VII- 94
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

TURNER	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
EXTEND RUNWAY (10-20)			
EARTHWORK	5.1	0.0	5.1
LAND ACQUISITION	2.4	0.0	2.4
SITE PREPARATION	4.9	0.0	4.9
OBSTRUCTIONS	0.1	0.0	0.1
DRAINAGE	1.6	0.0	1.6
PAVE RUNWAY(10-20)	260.0	0.0	260.0
MIRL RUNWAY(10-20)	31.2	0.0	31.2
TOTAL	305.3	0.0	305.3
1978-1982			
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	4.4	0.0	4.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	3.6	0.4	3.2
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.9	0.0	0.9
TOTAL	5.1	0.4	4.8
TOTAL PROJECT COSTS	314.9	0.4	314.5

TABLE VII- 95
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
TWIN BRIDGES			
1974-1977			
LIGHTING(MIRL)	30.8	24.4	6.3
EXTEND RUNWAY (16-34)			
EARTHWORK	67.5	53.6	13.8
LAND ACQUISITION	2.2	1.7	0.4
EASEMENTS	0.5	0.4	0.1
SITE PREPARATION	6.6	5.2	1.3
DRAINAGE	3.6	2.8	0.7
TOTAL	111.3	88.4	22.8
1978-1982			
NDB	8.0	6.3	1.6
PAVE RUNWAY(16/34)	260.0	206.5	53.4
GA AUTO PKG AREA	5.2	0.0	5.2
TOTAL	273.2	212.9	60.2
1983-1992			
GA TERM,HANGAR,APRON,ETC	8.0	4.9	3.1
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	1.3	0.8	0.5
TOTAL	10.0	5.6	4.3
TOTAL PROJECT COSTS	394.5	307.1	87.4

TABLE VII- 96
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

VALIER	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
1974-1977			
LIGHTING(MIRL)	26.6	21.1	5.4
TOTAL	26.6	21.1	5.4
1978-1982			
EXTEND RUNWAY(7-25)			
EARTH WORK	4.2	3.3	0.8
SITE PREPARTION	1.9	1.5	0.3
DRAINAGE	4.2	3.3	0.8
PAVE RUNWAY(7/25)	260.0	206.5	53.4
GA AUTO PKG AREA	5.2	0.0	5.2
TOTAL	275.5	214.7	60.7
1983-1992			
GA TERM,HANGAR,APRON,ETC	18.5	4.8	13.7
GA AUTO PKG AREA	1.4	0.0	1.4
GA MAINT BLDG & APRON	1.5	1.0	0.5
TOTAL	21.4	5.8	15.6
TOTAL PROJECT COSTS	323.5	241.7	81.7

TABLE VII- 97
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WHITEFISH			
1974-1977			
EXTEND RUNWAY(11-29)			
EARTHWORK	3.0	0.0	3.0
LAND ACQUISITION	3.2	0.0	3.2
EASEMENTS	0.5	0.0	0.5
SITE PREPARATION	1.6	0.0	1.6
DRAINAGE	1.8	0.0	1.8
STABILIZE RW(11-29)	52.0	0.0	52.0
TOTAL	62.2	0.0	62.2
1978-1982			
GA AUTO PKG AREA	4.4	0.0	4.4
TOTAL	4.4	0.0	4.4
1983-1992			
GA TERM,HANGAR,APRON,ETC	8.6	0.0	8.6
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	0.8	0.0	0.8
TOTAL	11.4	0.0	11.4
TOTAL PROJECT COSTS	78.1	0.0	78.1

TABLE VII- 98
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WHITE SULPHUR SPRNGS			
1974-1977			
LIGHTING (MIRL)	35.5	28.2	7.2
NDB	8.0	6.3	1.6
TOTAL	43.5	34.5	8.9
1978-1982			
EXTEND RUNWAY(2-20)			
EARTHWORK	0.9	0.7	0.2
EASEMENTS	0.0	0.0	0.0
SITE PREPARATION	0.9	0.7	0.1
GA AUTO PKG AREA	8.9	0.0	8.9
TOTAL	10.8	1.5	9.2
1983-1992			
PAVING	100.0	79.4	20.5
GA TERM,HANGAR,APRON,ETC	24.3	7.3	17.0
GA AUTO PKG AREA	2.1	0.0	2.1
GA MAINT BLDG & APRON	1.7	1.1	0.6
TOTAL	128.1	87.8	40.2
TOTAL PROJECT COSTS	182.4	123.9	58.4

TABLE VII- 99
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WINIFRED			
1974-1977			
EXTEND RUNWAY(8-26)			
EARTHWORK	5.0	0.0	5.0
LAND ACQUISITION	1.7	0.0	1.7
EASEMENTS	0.4	0.0	0.4
SITE PREPARATION	7.0	0.0	7.0
LIRL RW(8-26)	24.0	0.0	24.0
TOTAL	38.1	0.0	38.1
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	2.8	0.0	2.8
GA AUTO PKG AREA	0.7	0.0	0.7
GA MAINT BLDG & APRON	0.7	0.0	0.7
TOTAL	4.1	0.0	4.1
TOTAL PROJECT COSTS	45.2	0.0	45.2

TABLE VII-100
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WISDOM			
1974-1977			
EXTEND RUNWAY (1-19)			
EARTHWORK	12.0	0.0	12.0
RELOCATE ROAD	5.0	0.0	5.0
LAND ACQUISITION	1.5	0.0	1.5
EASEMENTS	0.5	0.0	0.5
SITE PREPARATION	6.0	0.0	6.0
OBSTRUCTION REMOVAL	1.0	0.0	1.0
DRAINAGE	2.0	0.0	2.0
MIRL & BEACON	45.0	0.0	45.0
TOTAL	73.0	0.0	73.0
1978-1982			
GA AUTO PKG AREA	2.9	0.0	2.9
TOTAL	2.9	0.0	2.9
1983-1992			
GA TERM,HANGAR,APRON,ETC	11.6	4.9	6.7
GA AUTO PKG AREA	2.8	0.0	2.8
GA MAINT BLDG & APRON	0.9	0.2	0.7
TOTAL	15.2	5.1	10.1
TOTAL PROJECT COSTS	91.1	5.1	86.1

TABLE VII-101
RECOMMENDED FACILITY DEVELOPMENTS BASED ON FEDERAL FUNDS BEING AVAILABLE AT THE CURRENT RATE OF APPROPRIATION FOR MONTANA
(IN THOUSANDS OF 1972 DOLLARS)

	TOTAL COST	FED GRANTS ANTICIPATED	STATE/LOCAL FUNDS REQUIRED
WOLF CREEK			
1978-1982			
GA AUTO PKG AREA	0.7	0.0	0.7
TOTAL	0.7	0.0	0.7
1983-1992			
GA MAINT BLDG & APRON	0.3	0.0	0.3
TOTAL	0.3	0.0	0.3
TOTAL PROJECT COSTS	1.0	0.0	1.0